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Are Heat & Humidity Hurting Your Equipment?

Track Environmental Conditions & Take Preventive Actions With The WatchDog 100

NO COMPANY IS IMMUNE to damage caused by environmental issues such as heat, humidity, power fluctuations, smoke, and airflow problems.

Take heat, for example. In just a matter of minutes, temperatures can skyrocket if the air conditioning fails, according to a recent white paper from ITWatchDogs. In fact, BICSI reports that an increase from 68 degrees Fahrenheit to 86 degrees can reduce the long-term reliability of equipment by as much as 50%, and data from Duke University Professor of Physics Robert G. Brown shows that even if the excessive heat doesn't cause components such as power supplies, motherboards, and memory chips to fail immediately, they are more susceptible to failure over time.

More Than Built-In Tools

A typical server room has a wall-mounted thermostat to measure room temperature and control the air conditioning. In addition, many servers now come with built-in sensors that can issue alerts if heat reaches a threshold or an internal fan breaks down. But those measures alone aren't enough, as airflow



The WatchDog 100 has onboard temperature and humidity sensors and can monitor up to eight external sensors.

problems can cause temperatures within a data center to vary. You need a comprehensive environmental monitoring setup.

What should you look for in a system? Start with one that lets you monitor temperature, humidity, and airflow with sensors installed on or near racks and critical devices. Consider placing sensors at the top, middle, and bottom of racks; in the air; and on the floor of aisles to track temperature and airflow rate. Sensors at the air conditioner's intake and discharge vents can measure efficiency.

The ability to log and graph measurements from the sensors over time can help you spot trends such as temperature spikes during peak operating hours or fluctuations that could occur when HVAC systems are set back during non-peak hours.

Microprocessor-based sensors eliminate the need for proprietary

software, as you can monitor conditions via Web browser and set alert thresholds and escalation schemes for when conditions exceed thresholds. Consider alerts in various formats such as SNMP, email, text message, or voice call notifications, and make sure your procedures include informing the right personnel. A repair service contract can ensure rapid response 24/7.

Other Conditions To Monitor

In addition to temperature, humidity, and airflow, consider other optional sensors:

Water. Monitor for leaks inside cooling equipment and place sensors at the lowest point of the floor to spot leaks from pipes, floods, or other disasters.


Power. Track the power coming into the data center and have procedures in place for an orderly shutdown in case of power loss.

Smoke. Extend the functionality of climate sensors by wiring smoke alarms into the climate monitoring and alerting system.

Doors. Use dry-contact sensors to detect the opening and closing of doors for room entry or server and UPS cabinets.

Space-Saving Package

Once you know what to monitor, ITWatchDogs has a complete line of scalable and flexible monitoring devices and sensors that can monitor everything from a small network closet to an enterprise-level data center.

The \$279 WatchDog 100, for example, is a 1U device that includes onboard temperature and humidity sensors and can monitor up to eight external sensors. A built-in Web server generates sensor data logs and graphs, which you can view from anywhere with the secure Web interface. Firmware updates and technical support are free for the life of the product. 

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You want the best for your data center. When it comes to power distribution, STARLINE gives you the best in efficiency, reliability, and customization. Now the STARLINE CPM offers an enhanced monitoring package that will allow you to monitor, integrate and display more data center power information easily and reliably.

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To learn more about how our CPM can help your data center or other mission critical installation, please visit www.StarlinePower.com.



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Online Tool Lets You Custom Design The Server Technology PDU That's Right For Your Data Center

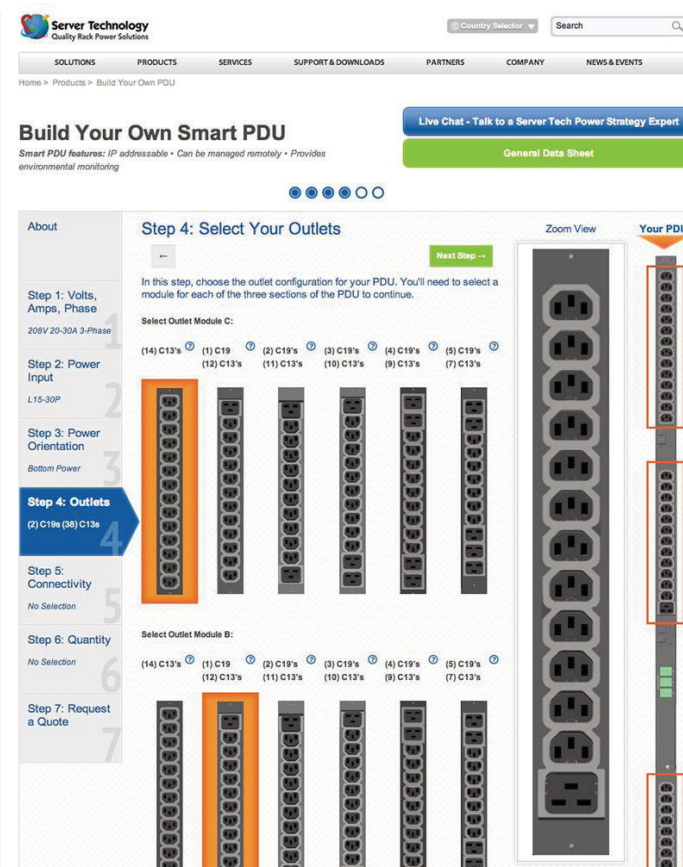
A LOT OF PDU manufacturers talk about how you can custom design their products to fit the exact needs of your data center. But when it comes down to it, building a custom-designed PDU is often time-consuming and confusing. Not to mention it can add days or even weeks to delivery time or require a minimum order.

Server Technology overcame those issues when it designed its new Build Your Own PDU (BYOP) configurator on its Web site. The BYOP system walks you step-by-step through the process of building a Smart or Metered HDOT PDU with the exact configuration you need.

High Density Outlet Technology

The Build Your Own PDU configurator starts with a 42-outlet frame for a Server Technology Metered or Smart High Density Outlet Technology (HDOT) PDU. The Smart line of IP-addressable PDUs allows for remote power and environmental monitoring. A network interface lets you view power, temperature, and humidity levels via Web browser, define acceptable power and environmental thresholds, and set email or SNMP-based alerts for when conditions exceed thresholds.

HDOT uses a unique style of C13 and C19 outlets that remove excess material in the housing to allow for maximum outlet density. HDOT PDUs are rated for operation at 60 degrees Celsius and, while



typical comparable PDUs measure about 2.2 inches wide, PDUs utilizing HDOT are just 1.75 inches wide, saving you considerable space inside cabinets.

Fulfill Unusual Requirements

"BYOP can fulfill unusual outlet requirements, especially with the offering of our High Density Outlet Technology (HDOT)," says Robert Faulkner, product manager. For example, he says, a traditional cabinet PDU that uses a mix of C13 and C19 outlets will have the C19s

top to bottom. With BYOP, you can specify 21 C13 outlets in the top half and up to nine C19 outlets in the bottom, so typical installations of heavy equipment at the bottom and lighter toward the top will succeed.

Server Technology's new line of Alternating Phase HDOT PDUs alternates the power phases on a per-outlet, rather than a per-branch basis. Combined with HDOT, Alternating Phase ensures you get the versatility you need combined with simplified cable routing and phase balancing.

Simple Process

The seven-step, user-friendly BYOP interface is just a matter of clicking a few buttons. Along the way, you'll see a graphical representation of your PDU as it's being built.

Voltage, amperage, and phase options include single-phase, three-phase, and alternating three-phase in 208, 230, or 240 voltage capacities. You'll choose your plug type and power orientation then select the number of outlets and outlet configuration (more than 200 outlet configurations are possible), along with the connectivity. Finish by entering a quantity, specifying a color, and requesting a quote. A representative will contact you within 24 hours, and you can expect your custom PDU shipped to you in as little as three days. ¹

Server Technology Build Your Own PDU

- Available for Server Technology's family of Smart PDUs, including ones with High Density Outlet Technology
- Choose from hundreds of different combinations of voltage, amperage, phase, and outlets

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www.servertech.com/products/build-your-own-pdu



Intelligent Physical Security To Protect Data From Insider Threats

Identicard® RACK ARMOR™ Server Protection Secures & Monitors Access To Server Rack Cabinets

IT GOES WITHOUT saying that you wouldn't attempt to operate a data center without securing the facility and perimeter, but are you aware that studies have found that the majority of data breaches result from insiders, either accidental or malicious?

Considering the emerging regulations that will require data centers to provide a data trail of server monitoring, it's critical that you have a system in place that delivers real time information about who is authorized to access racks in the server room.

Identicard's RACK ARMOR physical security solution addresses these compliance standards by monitoring the security status of server racks. In fact, it protects all of your assets at the source.

Comprehensive & Detailed

When you're monitoring individual server rack cabinets, you need to rely on a professional level of security sophistication, which is precisely what RACK ARMOR provides to admins.

Going beyond traditional solutions, RACK ARMOR lets you know when a rack isn't secured properly and allows you to control who has access to the rack, distinguishing between front vs. back door access and providing notification when someone uses a mechanical key override.

Aaron Henderson, security software product manager at Identicard, says in a colocation scenario in which an end

user wants to know who has accessed its racks, it's hard to give up that information with a paper log. But RACK ARMOR lets you "easily create and schedule a report with information about that customer's racks, so that the report is automatically generated and emailed to selected recipients at the scheduled times."

In essence, a colocation provider can offer RACK ARMOR protection as a service to the end user as a charge, Henderson says, and the customer gets the data they want whenever they want it.

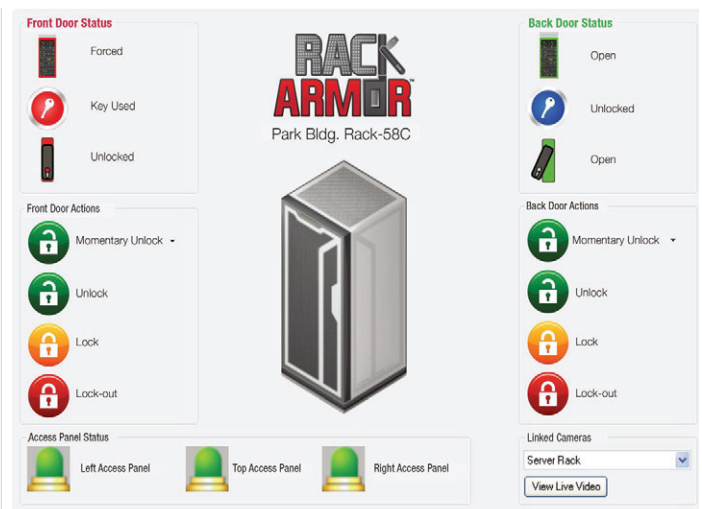
Easy Installation & Robust Features

Because RACK ARMOR is installed at the point of entry, the system doesn't require wires to be run from rack to rack, making for a faster and more efficient installation.

Henderson says RACK ARMOR simply requires that the rack have a 25mm x 150mm door prep. Taking into consideration this hardware specification, you can then decide how many racks you want to secure. "When [customers] order a rack kit, it comes with everything they need to secure the rack," he says.

In terms of monitoring capabilities, the system keeps track of door position (whether open or closed); swing handle security; electric lock status; and mechanical key switch activity.

To further enhance server monitoring, RACK ARMOR integrates with industry-leading



video management systems and includes dynamic system mapping, alarm acknowledgement, and multi-party control.

Video integration includes logs of cabinet access and server rack actions from multiple camera views. And you can use dynamic mapping to get a geographic visual of your server racks. Multi-party control requires two valid cards to be presented within 10 seconds of each other to authenticate the unlocking of cabinet doors.

In the event that an abnormal event occurs, such as the use of a mechanical key, the alarm acknowledgement feature can notify an admin via email, local audio, and video call-up.

It's About Accountability

Overall, data centers usually have reliable security protocol for entering the space where racks are located, but once

inside, rack-level security breaks down. This is why an extra level of physical security is paramount.

The added security may ultimately result in cost savings for your enterprise, as well. By eliminating the need for cages, data centers can optimize rack configuration to boost cooling efficiency throughout the facility.

Identicard RACK ARMOR Access Control

- Tracks individual user access to server racks
- Provides audit trail of activity
- Know immediately when and if your servers are vulnerable

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Real-Time Management & Monitoring Of Your Facility

Optimum Path Inc.'s Visual Data Center Software Provides DCIM Functionality In An Easy-To-Use Interface

YOU NEED TO BE ABLE to understand what's going on in your data center at any given time. Where are your devices? What is the current state of those devices? Do you have the capacity to add new devices?

Data center infrastructure management, or DCIM, tools address these questions and more. Optimum Path Inc.'s Visual Data Center solution provides all the DCIM capabilities you expect with an easy-to-use 3D graphical interface and a unified, highly scalable platform designed to reduce data center operational expenses and improve system and application reliability within your facility.

"We provide a software solution with a broad set of features related to the data center environment," says Sales Director Andrew Bright. "We can manage and monitor the status of your facility as well as individual IT devices within the rack, including servers and VMs, and even control your rack PDU outlets."

3D Visualization

Ease of use is a key differentiator for Visual Data Center. "All competitors in the DCIM space have dashboards, trend charts, and reports," Bright says. "Utilizing our easy-to-use, graphical navigation to access key analytics and business intelligence data is what separates our solution from others."

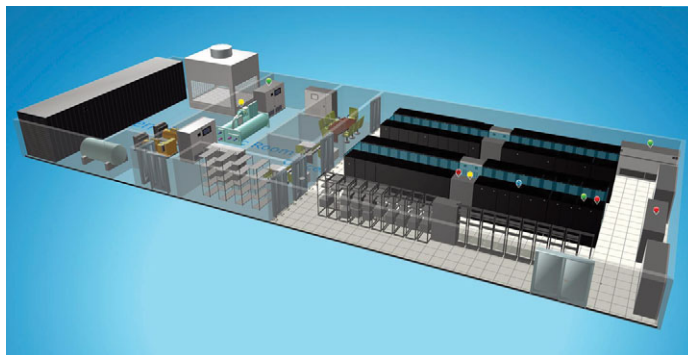
Visual Data Center integrates real-time monitoring, using a variety of facility and IT

protocols, with 3D visualization, change modeling, and asset management of facilities and IT equipment. Visualizing global data center sites from location to floor to rack to device, using more than 15,000 high-resolution life-like model images, allows users to create a virtual fly-through of the data center. Visual Data Center offers these 3D views via Windows, Web, iOS, and Android devices.

Full-Suite DCIM

Visual Data Center's most recent release offers new manage, monitor, and control features. Manage features include visual rack building, network and power port mapping with related path views, and service and warranty tracking. Monitoring features let users view real-time data for power, cooling, environmental, efficiency, processing, and compute data for their key devices. Control features allow the scheduling and manual control of any read/write data point managed by the platform.

Overlaying this impressive set of features is a comprehensive project, task, and work order system that allows you to automate add, move, and decommission activities of assets in the facility. This project workflow feature contains a sophisticated auto-planning feature that leverages power and space monitoring along with the power and network port mapping tools to make it easy to reserve, track, assign, and implement assets.



Visual Data Center also simplifies planning for moves, adds, and changes, with the ability to perform capacity planning based on space, power, and cable connection considerations. The project suites in Visual Data Center allow modeling of a single change or complex set of changes, while identifying impacts to capacity and best-fit based on user-defined criteria.

For colocation or managed service providers (MSPs), the newest release offers enhanced floor space and power capacity management features. Detailed power monitoring by floor, area, circuit breaker, and device enables you to bill your customers on exact power consumption.

"This visibility provides colocation providers with a new level of customer service and a key differentiator from the competition," Bright says.

Phased Approach

When looking for a DCIM solution, define your key requirements or pain points and then find a platform that meets those requirements. A phased

deployment is key to a successful rollout, as you'll have time to absorb the new functionality and job roles to take advantage of the software data and capabilities.

"With Visual Data Center," Bright says, "customers can deploy in phases by starting with asset management, introducing monitoring of facility and IT devices, and then enabling control of devices such as thermostats, lighting, VFDs, rack PDU outlets, and more to provide a comprehensive solution to fit almost any customer profile." **P**

Optimum Path Inc. Visual Data Center

- Monitor and manage the complete stack, including individual assets and power and network connections
- Access and control devices remotely and set up alarms
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StorSAN set out to overcome that by combining all of those things, plus cloud backup integration, centralized storage and file sharing, and other features, in its new Hybrid NAS/iSCSI family. With both NAS and iSCSI SAN in one system, you'll see immediate cost-saving benefits from reduced hardware requirements.


The new Hybrid NAS/iSCSI systems are ideal for business-critical applications that require quick read/write speeds and random I/O as the systems store most frequently accessed data in SSD cache, providing faster data searching. The use of SSD also means lower power consumption and less chance of physical shock.

The StorSAN solutions use the ZFS file system, which is typically seen only on high-end enterprise systems. The file system's self-healing architecture detects silent data corruption and corrects errors on-the-fly.

That architecture, together with the copy-on-write transactional model, mean there is complete end-to-end data consistency and no chance of a file system crash.

The file system's compression features save storage capacity and increase write speeds, while a variable block size helps improve I/O throughputs. With the ability to integrate StorSAN systems with the Amazon S3 cloud, you can upload designated storage for remote backup and benefit from one-click download for disaster recovery.

The StorSAN Hybrid family comes in 1U to 4U rackmount

form factors with the ability to expand to up to 256 hard drives through SAS expansion arrays and support for RAID levels 0, 1, 5, 6, 10, 50, and 60. 

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- Reliable PCB Power Distribution
- Fail Functional Design



Metered Outlet - MRP

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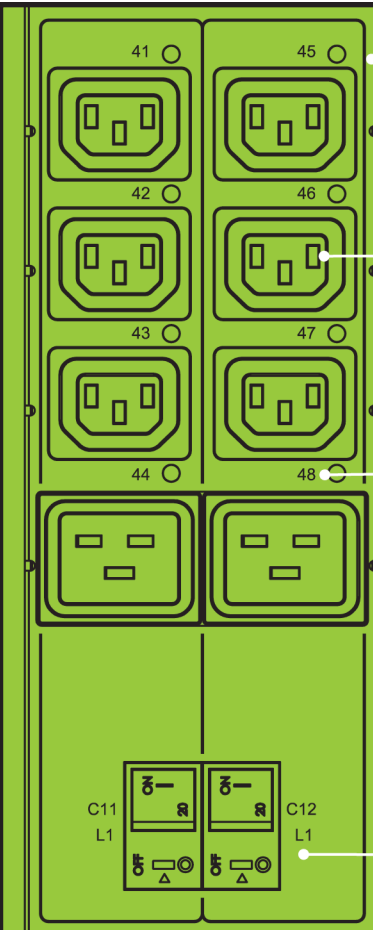
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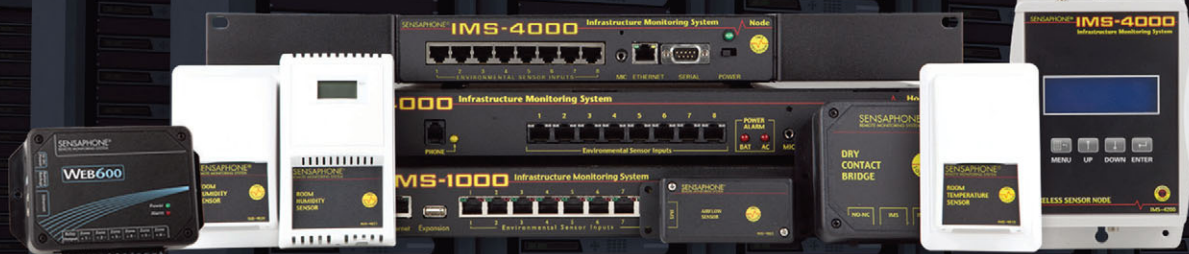
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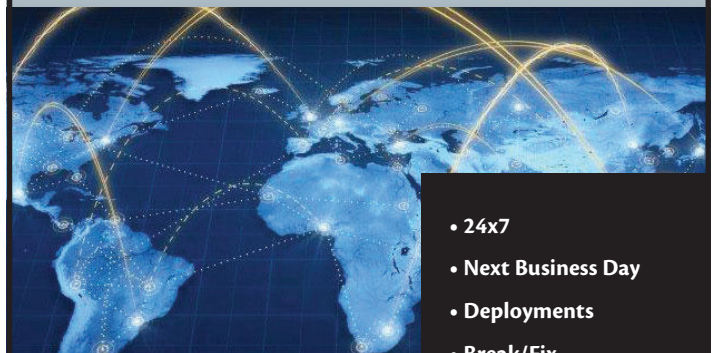


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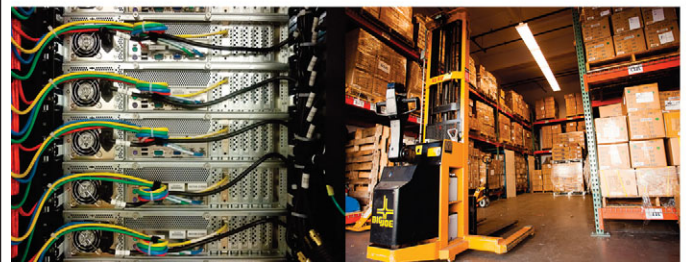
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An Easy, Affordable Way To Monitor & Manage Power

Server Technology Sentry Power Manager Provides The Data, Alerts & Analytics You Need

POWER IS STILL KING when it comes to the top concerns data center managers have as they work to keep their data centers, the equipment inside them, and their enterprises as a whole up and running. Calvin Nicholson, senior director of software and firmware at Server Technology, says there are other concerns, including increased cabinet densities, demand for more computing power, and the need to locate stranded capacity. But many of those concerns all center around being more efficient in the way a data center uses its power.

"Power costs are going up, and availability is going down," he says. Overcoming those conflicting issues requires a way to better manage and control the power your data center uses.

Server Technology's Sentry Power Manager (SPM) helps ensure you're using power in the most efficient way possible. SPM's capacity planning and predictive features help you spot stranded capacity and help you know if and when you might run out of power.

"If you're not monitoring power, how do you know how much you're using compared to availability," he says. "If you have available capacity, you can put off a decision that could cost you thousands of dollars for extra space or up to millions of dollars for a new data center build."

Sentry Power Manager provides a way to measure, monitor, and trend data center power information in one central location. The product comes in both a standalone appliance and virtual version.

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With SPM's SNAAP feature, you put in an IP range and SPM discovers the installed CDUs—regardless of manufacturer or whether it's just a few or three—and brings the information back into the SPM interface. You can configure cabinets and locations and get a global view of your data center floor and CDUs or quickly drill down to an individual cabinet or CDU. You can group and cluster outlets together across IP addresses, rows of cabinets, or the whole data center.

Use the dashboard to configure email alerts, SNMP trap forwarding, and alarms based on the power and environment thresholds you set. Plus, you can automatically generate system reports and send them via email to a recipient. You can even include certain devices on or off an alarm, or a radical new feature called "diffuse," which allows you to work on any work area, not just a specific cabinet and outlet. "If you're trying to troubleshoot a new device and the cabinets have made it," he says, SPM can tell you the data you need. ☐

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A drill-down search to view content by specific product category

The screenshot displays the Processor.com website interface. At the top, the logo 'PROCESSOR' is prominent, followed by the tagline 'Products, News & Information Data Centers Can Trust.' Below this is a navigation bar with links: HOME, ABOUT US, SUBSCRIPTION HEADQUARTERS, ADVERTISING, and CONTACT US. The main content area is divided into several sections. On the left, there's a 'NEWSSTAND' section featuring a thumbnail of a magazine cover titled 'Plug-Level Power Monitoring'. Below this is a 'CATEGORIES' list with expandable arrows next to items like Clients, Messaging & Telephony, Networking & VPN, Physical Infrastructure, Security, Servers, Services, and Storage. The 'Featured Content' section on the right highlights three articles: 'Plug-Level Power Monitoring' (COVER | JUNE 13, 2014) by Universal Electric Corp, 'Improving The Transfer Switch' (FEATURED PRODUCT | JUNE 13, 2014) by Raritan Americas, Inc., and 'Are Major Network Fixes In The Immediate Future?' (HOW TO | JUNE 13, 2014). Each article has a 'Read Article' button. A red line with arrows illustrates the drill-down search process, starting from the 'CATEGORIES' list, moving to the 'Plug-Level Power Monitoring' article, and then to the 'Read Article' button. Below the 'General Content' section, there's an 'Upcoming IT Events' section with a 'Read Article' button. At the bottom, a red line points to the 'Easy access to read full articles' text.

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Two Reports Delve Into Server Market

Gartner and IDC released their most recent updates on the server market. Both firms report slight increases in both worldwide server shipments (IDC reports a 1.2% increase between the second quarter 2013 and second quarter of this year; Gartner reports 1.3% increase) and revenues (Gartner reports 2.8% increase in revenues, while IDC reports 3.9% year-over-year growth).



Here are some other statistics from the second-quarter reports:

At 6%, the Middle East and Africa region had the highest shipment growth (Gartner)

2.2 million units shipped (IDC)

x86 server shipments were up 1.4% in units and 8.1% in revenue (Gartner)

"The server market is experiencing the beginning of a cyclical refresh cycle as systems deployed shortly after the financial crisis are retired and replaced."

— Matt Eastwood, group vice president and general manager, enterprise platforms, at IDC

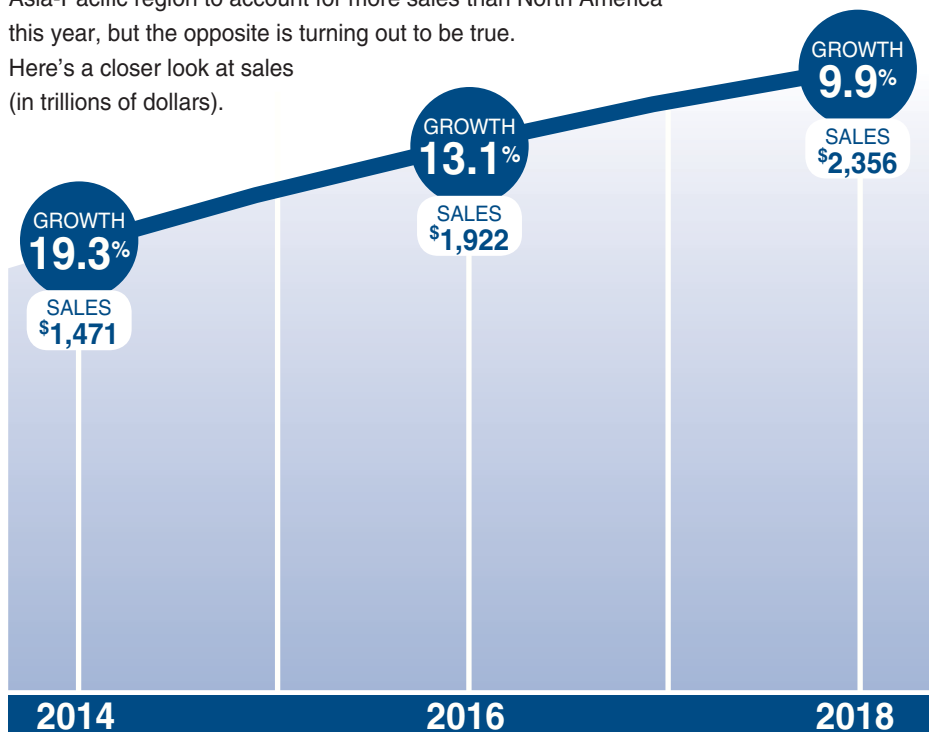
"All regions showed growth in both shipments and vendor revenue except for Eastern Europe, Japan, and Latin America."
— Jeffrey Hewitt, research vice president at Gartner

Blade servers now account for 16.8% of total server revenue (IDC)

B2C Growth Slows, But Sales Increase

Marketing research firm eMarketer recently reported that business to consumer (B2C) e-commerce sales are on an upward trend in terms of dollars spent, despite a downward trend in year-over-year growth. Global B2C e-commerce sales are expected to reach \$1.471 trillion this year, according to eMarketer. The firm had previously forecast the Asia-Pacific region to account for more sales than North America this year, but the opposite is turning out to be true.

Here's a closer look at sales (in trillions of dollars).



Mobile Internet, Data Consumption Drive Revenues

Although mobile operators have faced somewhat drastic drops in per-user revenue in voice and messaging services, fast growing mobile data consumption is mitigating the impact, reports ABI Research. Global mobile data traffic will grow six-fold between now and 2019, ABI Research predicts, to 260.8 Exabytes. Mobile service revenue will increase just 0.58% this year as mobile carriers take on higher subscriber retention and acquisition costs to support their market positions, says Marina Lu, research analyst at ABI Research. Jake Saunders, vice president and practice director, core forecasting, says Japan and South Korea mobile operators expect monthly data traffic per wireless subscriber to reach 12GB in 2019.

Chromebook Market Growing, Driven By Education Sector

More than 5 million Chromebooks will be sold this year, up 79% from 2013, according to Gartner. The research firm predicts sales will nearly triple, to 14.4 million units, by 2017. Isabelle Durand, principal analyst at Gartner, says competition in the Chromebook market is intensifying as vendors search for new business opportunities. Chromebooks, she says, are an attempt to revive interest in sub-\$300 portable PCs. Last year, about 85% of all Chromebooks were sold to the education sector, and 82% of all Chromebook sales were in North America. In addition to education settings, Gartner says Chromebooks have potential roles in businesses, such as for staff in banking, estate agents, and hotel receptionists. "By adopting Chromebooks and cloud

computing, businesses can benefit. They can shift their focus from managing devices to managing something much more important—their data,” Durand says.

■ Smartphone Market Growth Slowing, But Still Strong

Demand for smartphones in mature markets has slowed considerably, but demand in emerging markets is more than making up the difference. IDC's latest mobile phone forecast shows that, until this year, smartphone sales in mature markets have consistently had double-digit growth year over year. This year, year-to-year growth in mature markets will slow to just 4.9%, but growth in emerging markets will reach 32.4%. Average selling prices are more than \$400 in mature markets and less than \$250 in emerging markets. More than 1.25 billion smartphones will ship this year, up 23.8% from last year. IDC predicts 1.8 billion units will ship in 2018.



■ BYOD? Make Sure Security Methods, Technologies Are In Place

You know that bring your own device, or BYOD, strategies increase security risks, but it's not just the devices themselves. New data from Gartner shows that through next year, more than 75% of mobile applications will fail basic security tests. To a large degree, the applications employees download from app stores have little to no security assurances, exposing them to attacks and violating enterprise security policies. To combat the threat, Dionisio Zumerle, principal research analyst at

Gartner, says you need to adopt methods and technologies for mobile application security testing and risk assurance. Gartner recommends three methodologies: static application security testing (SAST), dynamic application security testing (DAST), and behavioral analysis.

■ Gartner: Organizations Becoming More Aware Of Threats

Mobile, cloud, social, and information will spur security spending through at least next year. “This Nexus of Forces is impacting security in terms of new vulnerabilities,” says Gartner Research Director Lawrence Pingree. “It is also creating new opportunities to improve effectiveness, particularly as a result of better understanding security threats by using contextual information and other security intelligence.” Gartner research shows that worldwide spending on information security will top \$71.1 billion this year, up 7.9% from last year; Gartner expects another 8.2% growth in spending next year. Companies are investing most in data loss prevention, which will see spending increase 18.9% this year, according to Gartner's forecast.

■ Original Design Manufacturers Shifting Business Models

Many original design manufacturers (ODMs) are showing signs of changing their business models to directly target enterprises and hyperscale data centers, which typically have large data center requirements and serve external customers, according to Naveen Mishra, research director at Gartner. Those customers are responding well. “Direct engagement with hyperscale data centers (DCs) is the biggest contributor to ODM growth,” Mishra says. “These customers are willing to consider innovative DC infrastructure designs that can offer better scalability and can drastically reduce the total cost of ownership of servers (including power and cooling expense) compared with mainstream servers offered by traditional server OEMs.”



■ Analyst: No Question About SDN's Role In The Future

Over the past year, the majority of traditional switch and server virtualization vendors have started offering software-defined networking products, says Cliff Grossner, Ph.D., directing analyst for data center, cloud, and SDN at Infonetics Research. Those new products have been met with great demand, with market revenue up 192% between 2012 and 2013. “There is no longer any question about software-defined networking (SDN) playing a role in data center and enterprise networks,” Grossner says. Infonetics expects the leaders in the SDN market will be solidified within the next two years, with the in-use market for SDN Ethernet switches and controllers expected to reach \$9.5 billion by 2018.

■ Internet Of Things, Robotic Technologies Intersect

In the future, intelligent devices could monitor events, bring together sensor data from a variety of sources, and then use intelligence to determine the best course of action and act on it, according to a new publication from ABI Research. The report, titled “The Internet of Robotic Things,” envisions a world where Internet of Things infrastructure and servers intersect with robotic technologies. “The combination of advanced sensing, communication, local and distributed processing, and actuation take the original vision for the IoT to a wholly different level, and one that opens up whole new classes of opportunities for IoT and robotics solution providers, as well as users of their products,” says Dan Kara, practice director, robotics, at ABI Research.

Trends In Tape Storage

All The Reasons You Shouldn't Overlook This Cost-Effective Archiving Solution

WHEN YOU THINK of innovation, you probably think of the latest technology that would benefit your data center. What may not come to mind, however, is how older technologies can evolve to become relevant all over again. Such is the case with tape storage.

Now and into the coming years, tape storage will look much more like a hybrid solution than ever before. So if you've been listening to naysayers crying "tape is dead," an appropriate response would be "tape is evolving." Read on to learn more about what this evolution and growth will look within today's storage infrastructures.

A Tale Of Two Tape Stories

Depending on whom you ask, tape is either making a resurgence or it's being

crowded out by other more "modern" storage mediums.

"In terms of the overall marketplace, you can tell two stories. One of growth and relevance and one of decline and irrelevance. People have been firing away at the tape market aggressively for 10 to 20 years to make it irrelevant," says Robert Amatruda, research director for data protection and recovery at IDC.

Amatruda says tape is still significant in terms of data protection as well as disaster recovery, and it's increasingly making an impact in the archiving market. What makes it relevant is that "it's still a relatively low-cost medium when you compare it against data being stored on disk drives, general-purpose disks, and backup appliances."

Tape Is The Tortoise In The Storage Race

Tape storage may not carry with it the pomp and circumstance that some of the latest storage solutions do, but "tape deserves a look if you're managing terabytes and petabytes, [whereas] disk and appliances can actually be more expensive," says Robert Amatruda, IDC's research director for data protection and recovery.

Although tape is a slow-moving market, Amatruda says it's still a relevant marketplace in the new IT infrastructure. And from an innovation standpoint, "there are active development road maps by multiple vendors around drives and automation."



He adds that customers are using disk-based strategies such as snapshots, replicas, and mirroring; however, tape is "really a story about consolidated infrastructure where you've got, for a lack of a better word 'bigger tape' behind the applications."

Tape Technologies

When you incorporate tape backups into your overall storage plan, keep in mind that you're not simply saying yes to one approach that may not even be ideal for your storage strategy. Thomas Coughlin, president and founder of Coughlin Associates, says there are a number of approaches for backing up to tape.

"Caching to disk drive arrays and then to tape is one approach," Coughlin says. "In addition, because mounted and running tapes have very high data rates, there are some caching systems for tape backup that are using flash

memory to keep up with the tape data rates."

Although linear tape open (LTO) has been standardized as an open-format technology to enable ubiquity between the array of existing tape options, linear tape file system (LTFS) format has seen greater adoption in the past year.

"The use of LTFS file systems in modern tape storage makes tape storage like a file system storage (the tape shows up like an external disk drive)," Coughlin says. With LTFS, he says, data centers can, in essence, treat tape like another file storage format.

Coughlin adds that there's also a new movement to create what's called representational state transfer (RESTful) object-based tape storage, in which tape can be written from the application through the RESTful API interface that "may work well in a cloud-based archive environment."

Tape Capacity Advantages

In terms of long-term information storage, Coughlin says magnetic tape is a cost-effective media. “[Magnetic tape] doesn’t use power when not being used, and the digital tape formats being used today can last for decades under the right storage conditions,” he says.

Modern digital magnetic tape uses technology developed several years ago for hard disk drives, he says. Keep in mind, however, that “magnetic tape has slower access time than HDDs, but it costs less for storing the same amount of content.”

The lesson to learn here is that there’s a lot of available technology to continue to increase tape capacities, because “tapes can provide volumetrically efficient content storage and low storage operating costs for cold storage applications for many years to come,” Coughlin says. In fact, he says tape capacity increases greater than 30TB are on the horizon.

“This notion of having a tape drive associated with a server or rack has really been shattered in favor of a large tape system that can manage hundreds of terabytes and now petabytes of storage,” Amatruda says. “From that standpoint, tape is still very, very relevant.”

Where Tape Is Taking Us

Although tape storage has been around for more than 50 years, Amatruda says the takeaway is that there’s innovation going on with tape in the marketplace.

“It’s still a marketplace that has longevity—it’s amidst a transition. So that’s what we’re seeing in terms of the decline in the revenues,” he says. “There’s been some consolidation in the marketplace [and] it’s really a reflection of a changing use case for tape oriented more along the lines of archive.”

In this era of big data, or what Amatruda calls “the capture period of data,” a lot of companies and governments are collecting data but won’t be performing analytics on

the data right away, he says. Instead, they need a place to archive it that is both cost-effective and reliable. “Most of the data being captured is

unstructured—images, surveillance, and video camera capture. Tape is really very appropriate for the new world order,” he says. **P**

LTFS Advantages, Use

According to Robert Amatruda, research director for data protection and recovery at IDC, a linear tape file system, or LTFS, is essentially putting a file system on the tape itself. “It strips the tape of all of its proprietary formatting and makes the drive accessible much like a USB drive,” he says.

Amatruda says that LTFS frees the user from the entire process, and this is potentially a game-changer, so much so that it’s penetrating non-traditional industries. “We’re seeing it being used in areas where tape hasn’t had a role traditionally, such as media, entertainment, broadcast—it’s really prevalent there.”

BONUS TIPS:

Examine Your Objectives

Whether you find it prudent to combine tape storage with alternative solutions, such as disk storage, is contingent upon your company’s recovery point and recovery time objectives, says Robert Amatruda, research director for data protection and recovery at IDC. “If the recovery time objective is very short, you tend to see

disks oriented behind that. If it’s measured in days [and] months, tape is really oriented behind that,” Amatruda says. Increasingly, he says that customers are relying on both strategies, though there is a trend to move away from tape for operational recovery.

Success Is In Longevity

The continued success of tape lies more in its persistence

within the storage marketplace rather than its appearance in headline-making tech news. “The rub is that there are numerous success stories, but you only hear about the failures when people lose their data in a grand style,” Amatruda says. “At the end of the day, you’d be hearing more griping about tape-based recovery if it didn’t work well. It’s kind of a catch-22.”

What To Know About Outsourcing The Service Desk

Assess In-House Processes, Collaborate With A Vendor & Conduct Ongoing Evaluations

WITH SO MANY devices and end-user systems outfitting the enterprise workforce, your service desk has likely become the lifeline that employees rely on to not only resolve isolated incidents but also manage an increasing volume of problems that disrupt workflow and reduce productivity.

That being said, running the corporate help desk from the inside is no simple task, and that's why it can sometimes be more advantageous to hire an outside service desk as a service (SDaaS) company. Such outsourced help desks can free up in-house IT specialists to focus on mission-critical tasks and other priorities without having to limp on the crutch

of overwhelmed and disorganized internal processes.

Get Organized Before You Go Outside

It's important to first understand that handing over standard service desk operations to a cloud-based vendor or managed service provider isn't as simple as shifting ticket data from one server to another.

According to Info-Tech Research Group's "Outsource Or Repatriate The Service Desk," organizations must work to standardize their own service desk processes before they switch to a vendor, otherwise problems may become amplified if IT leaders believe issues will "disappear" when



someone else is handling the heavy lifting.

For example, an organization will be more likely to see a successful transition if its processes and reports are well-defined. Furthermore, Info-Tech advises that problem management, escalation guidelines, and ticket template and classification rules all be in place prior to the switch.

R "Ray" Wang, principal analyst, founder, and chairman of Constellation Research, agrees, adding that cloud-based help desks are great for companies of all sizes, "but you really do need to understand your development processes or adapt to the approach that the SDaaS vendors provide in order to get the maximum benefits."

He says that once you've done this, you free up valuable time from your team that allows individuals to continue "building products, servicing the team, and completing projects while

the SDaaS helps out your users and employees."

Develop Your Strategy

It's difficult to know what to expect if you haven't explored SDaaS options before, but Carl Brooks, an analyst at 451 Research, says help-desk outsourcing is a "fairly mature industry and can take many forms." He says it's important to recognize that you'll likely be "buying into a complete suite of help-desk services with a well-developed protocol for engagement and response."

However, he says responsibility for IT functions remains with IT, so offloading certain tasks and procedures doesn't give IT an excuse not to execute vendor management practices.

Understand that there are multiple levels of operation when it comes to support (service management, service desk, specialized analyst, etc.), which means you need to know what

Be Aware Of The Disadvantages Of Help-Desk Services

As much as offloading many of your help-desk burdens can seem like the light at the end of a long, winding tunnel, there are some obstacles and bottlenecks that can occur that you might not have considered upfront. R "Ray" Wang, principal analyst, founder, and chairman of Constellation Research, says it can take some time for the service to get used to your company culture. Additionally, "you can lose touch with the bigger, non-written qualitative issues if you do actively engage with the service."

Depending on which workflows you're outsourcing, sometimes the advantage comes with a disadvantage, according to Carl Brooks, an analyst at 451 Research. "[An] advantage is a sharp reduction in costs to support desktop workers," he says. "The disadvantage is that there is now an intermediary step between users and support."

the vendor is in charge of and what stays in-house.

Examples of the former would be daily ticket tracking, support escalation, hardware maintenance, and disaster recovery. Plan to house training, document standardization, and vendor performance tracking under your own roof.

How To Work Together

Keep in mind that there will be geographical, financial, contractual, and other hurdles that may impact your professional relationship with your SDaaS vendor, and ultimately your sales and marketing teams need to be on the same page with IT to ensure you reach a common goal.

Info-Tech notes that stakeholders—the CIO, internal service desk managers, and vendor—need to collaborate and understand what’s expected in order to efficiently execute tasks. For instance, when you apply the Responsibility Assignment Matrix (RAM) to managing SDaaS tasks, the roles of who is responsible, accountable, supportive, consulted, and informed become more evident.

In terms of working closely with the service-desk vendor, the in-house service desk decision maker should have routine meetings with the vendor to review statistics, staffing, process changes, and more.

Ask The Right Questions

Suppose you placed yourself in a scenario in which you would need troubleshooting assistance. What could you learn from this type of role-playing? Brooks suggests trying the following test to determine your next steps.

“Pretend something has gone wrong with your personal desktop computer. Imagine the process to get it resolved as it currently stands at your organization,” he says. “Now go and ask your IT department what is wrong with that process and what they would suggest to improve it, and use those recommendations to inform your service-desk strategy.”

Other questions that are worth posing include: Are you

prepared to view outsourcing as full turnover of your help-desk staff? Are you prepared to be just as engaged in your service-desk management procedures as before? Do you have a plan for reincorporating processes

back into your internal workflows at the right time?

It’s never too soon to think several years ahead, so you can both outsource and re-establish help-desk systems in the near- or long-term. **P**

Time Is Your Currency; Learn How You Can Save It

Buying into service-desk outsourcing requires a financial commitment, but much of what you’re exchanging is time—time given to investing in a new contract and time saved to dedicate resources toward internal projects. For those wondering if this move makes sense for their organization, 451 Research Analyst Carl Brooks says the best way to evaluate outsourcing possibilities is to look at the time and resources your IT organization spends on desktop support for workers and if it’s a wasteful expenditure. You can start by asking questions such as, “Are there things your IT staff could be doing that are more useful and substantial than answering basic computer usage questions?”

BONUS TIPS:

Advice For Fence-Sitters

According to R “Ray” Wang, principal analyst, founder, and chairman of Constellation Research, enterprises should consider service-desk outsourcing if they have immature help-desk practices. “If you are rapidly growing, definitely consider [outsourcing as an option], but make sure you

have a transition plan for in-house three to five years out.”

When Outsourcing Isn’t To Your Advantage

Outsourcing the service desk isn’t the most ideal choice for some organizations, and a number of factors can come into play when you’re weighing all your options. But the question you should be asking is in what scenario is outsourcing

not as beneficial for one given organization compared to another? 451 Research Analyst Carl Brooks says “remote help desk has very little utility” anywhere users are highly technical or doing complex computing or in heavy industries such as manufacturing or farming. If your company falls into any of these categories, consider re-evaluating your intentions to move services elsewhere.

Reduce The Chance Of Emergency Power Off Issues

How To Avoid Experiencing Accidental EPO Disconnects

POKE AROUND ENOUGH forums and user comment sections on IT-related Web sites, and you'll find tales concerning mishaps with emergency power off (EPO) systems—otherwise known as “disconnect” or “disconnecting means.” EPOs, a mechanism that shuts down power to data center equipment in case of emergency, can certainly be a good thing if a fire, flooding, or other disaster occurs. If triggered by a disgruntled employee or even accidental bump, however, the result can mean downtime and staggering revenue loss. Thus, training, strategies, and preventive measures are vital.

About EPO's Existence

An EPO exists to shut off power to an entire room or to individual electrical equipment, thus providing safety

to personnel and protecting the facility. Further, personnel can shut down equipment immediately without having to exit the facility.

Ken Koty, sales engineer at PDU Cables (866/631-4238; www.pducables.com), says there are multiple functions for an EPO, including protecting personnel against electrocution, de-energizing all electrical equipment, containing a fire and ensuring the right concentration of clean-agent fire suppressant systems, and shutting down equipment in cases of flooding or a sprinkler system engaging.

If an EPO button isn't physically protected, however, even an accidental bump could cause a disconnect. For this exact reason, some question if having EPO buttons installed is wise. Koty believes they're an “absolute necessity.” Firefighters, he



says, won't even consider entering a facility in which water and live electricity are mixed. “That's like asking someone to disarm a bomb,” he says.

Darin Stahl, principal consulting analyst at Info-Tech Research Group, says EPO is often misunderstood. “Many believe it's only included in a data center design to power off the room in the event of a fire, but an EPO is a life safety mechanism that can be used to power down a single piece of electrical equipment, say a UPS, or an entire room of equipment in an emergency,” he says. If a main disconnect breaker isn't readily accessible in an emergency, an EPO can cut power without leaving the room or figuring out which switch (and panel) to use.

Stahl says some jurisdictions mandate a single-power disconnect such as an EPO. “Even the NFPA 70 [National Electrical Code], which heavily influences the electrical codes in the U.S., requires that UPS devices over

Key Points

- Though EPO accidents can result in serious losses, buttons are considered vital in terms of the safety of personnel.
- EPO buttons should be physically protected using cases to reduce the likelihood they're accidentally pushed.
- Posting warning signs and providing training regarding the use of EPO buttons is strongly recommended.

750VA be equipped with ‘a means to disconnect power to all electronic equipment in the information technology equipment room or in designated zones,’” Stahl says.

EPO Training

Some enterprises error with disconnect systems by installing EPO buttons sans signs or protection, including at exit doors where non-suspecting visitors might press them

Get Started

If building a new data center or renovating existing space, arguably the best approach toward EPOs is consulting local fire officials about local standards, codes, jurisdictions, criteria, etc. regarding EPO usage. Ken Koty, sales engineer at PDU Cables (866/631-4238; www.pducables.com), says a data center he once managed had “dual-corded everything.” Thus, he worked with inspectors and was able to divide EPOs per path. “So, rather than have just one button to kill everything, we had a blue and green side,” he says. “Our thought was that if one failed or malfunctioned, everything dual-corded would failover to the surviving path rather than shut down the whole data center.”

believing them to be a door bell. Two accidental disconnects Stahl says he's heard from clients have to do with a button wasn't adequately covered or caged, in fact. One incident occurred during scheduled downtime for an equipment refresh, thus there was zero impact to the business and users, though the upgrade was delayed. The other occurred in a remote location during normal business hours and took hours to get services back running.

It's wise to use proper signage and training concerning EPOs. Anyone entering a data center should see warning signage above an EPO, for example.


Further training on the overall facility and potential risks and dangers should be provided for those entering or working in the facility. As a former data center manager, Koty constructed an EPO test system to train facilities, IT, and personnel to inform them where EPOs were located and when and how to use them.

EPO Strategies

You also want to take measures to ensure buttons are protected against accidental engagement. For example, because more data centers now have personnel whose first language isn't English, post EPO warning signs in different languages, Koty says.

Additionally, physically cover the EPO button and control access to it. A hinged, protective plastic case can eliminate accidental bumps and make it less likely the button is mistaken for something else. Koty equipped his EPOs with audible alarms that sounded if the case was lifted to "let you know you're getting into something that you better understand."

Koty also suggests installing red, wall-hanging, non-dialing phones next to EPO buttons, something he considers nearly as important as the button itself. In emergencies, a panicking, flustered employee could simply pick up a phone that automatically dials security or a master control room and signal that there's a problem, he says. Koty has also equipped EPO buttons with safety pins similar to those on fire extinguishers that must be pulled before the EPO button could be pushed.

In terms of access, Koty says to implement policy requiring visitors, vendors, and others to sign in prior to entering the data center. Moreover, escort them throughout the facility. Stahl says "there should be no circumstance where an untrained or unqualified human is accessing the data center unescorted. Access policies should prohibit that entirely because nearly all data center downtime is introduced by humans." 

Action Plan

Darin Stahl, Info-Tech Research Group principal consulting analyst, recommends the following steps regarding the use of EPO buttons in data center facilities:

Cover them. Using a hinged, protective case that covers the EPO button can reduce the chance the button is accidentally bumped and engaged, as well as lessen the likelihood someone mistakes the button is something else and pushes it.

Control access. Policy should be implemented that prohibits access to the data center to any untrained or unqualified person without an official escort.

Use warning signs and train staff. Implement signs and conduct training sessions. Warning signs should be clearly posted above EPO buttons. Training must be provided to staff concerning risks and dangers for those working in or visiting the facility.

Top Tips

Use cameras. Installing cameras that monitor each EPO button will go a long way toward deterring a disgruntled employee from pushing one and facing criminal charges. Video surveillance can also show you who is regularly loitering in the area.

Post signs. Anyone who enters the data center should be able to see clearly marked warning signs next to every EPO button indicating what purpose the button serves.

Pull, don't push. Using an EPO that requires someone to pull it out vs. pushing it in will make it less likely that the button is accidentally bumped and engaged.

The State Of Remote Network Monitoring & Management

Newer Technologies Make It Easier To Control & Maintain Networks From Afar

ENTERPRISES TODAY often have offices in different cities, states, or even countries depending on where their services are needed and where customers are located. For IT and data center managers, this makes it difficult to simply keep networks up and running, let alone add new functionality as business demands change. For that reason, companies need to look at the variety of network management solutions in the market and find ones that fit their needs both at the primary site and their remote sites.

Changes & Challenges

In recent years, IT teams have had to adapt to a new role where they ensure service performance across networks

rather than simply managing and maintaining onsite infrastructure. This doesn't even take into account the fact that businesses and employees are using more network-connected devices than ever before and are demanding high speeds and constant availability.

For example, BYOD policies have introduced new "complexity in regards to remote network management because employees still expect network connectivity, access to systems, and applications," regardless of whether they are for business or personal use, says John Rakowski, an analyst and advisor at Forrester Research. The devices themselves also continue to evolve with more demanding



applications and operating systems, Rakowski says.

The other issue is that companies historically haven't necessarily prioritized network monitoring solutions, which means many IT teams can't get a proper view of their infrastructure.

"What I find is that organizations have a ton of different monitoring tools implemented by different groups, and the way they've done it is just inconsistent," says Andre Kindness, principal analyst at Forrester Research. "If you do it that way, you're talking to one group, then another, and trying to use all of these different tools with different data to solve problems. It's a mess and probably my No. 1 issue when talking to companies about monitoring."

Out-Of-Band Management

Rohit Mehra, vice president of network infrastructure at IDC, says that "the demands on the configuration, monitoring,

management, analysis, and remediation of the vital underlying network infrastructure operations is a top priority," which means companies need to use in-depth tools to get a better grasp of their networks.

One such technology is out-of-band management, which Mehra says is simply setting up a secondary network, separate from your main network, that carries user applications and data, to use as a troubleshooting platform or in the event your main network goes down.

Rakowski says out-of-band management is critical because it doesn't "take up valuable bandwidth on the connection that services applications," meaning that it won't "impact performance or harm employee productivity."

Kindness says out-of-band management could possibly create unnecessary redundancy in organizations. You should weigh the pros and cons of setting up an entirely separate network and

Choose Systems Over Components

Andre Kindness, principal analyst at Forrester Research, says that companies too often "go out and find a tool for a specific issue instead of taking a step back and looking at the bigger issue or building on a tool that they already have." This can cause problems, because instead of having one unified platform for network management, you instead have multiple, disparate solutions that don't necessarily work together.

This is particularly troublesome with companies that have remote sites. For that reason, Kindness recommends that companies look for systems rather than components. By taking this approach, you can find one system that will not only work facility-wide, but also organization-wide at all of your branch offices and remote sites, which will make life much easier for your IT team and network experts.

consider how many users you have, how much bandwidth you need, and other factors.

Application Performance

Application performance management (APM) is another common tool for gaining more control over your network. This makes organization-wide monitoring much easier, regardless of location. “APMs let data center managers manage the performance and availability of the applications that their employees use from an end-to-end perspective,” Rakowski says. “End-to-end means that they will be able to proactively monitor the end user’s experience from the employee device through to the backend infrastructure workload, such as application servers, network components, and databases. Good solutions here are also able to analyze down to the network layer providing the ability to carry out network packet analysis.”

Software-Defined Networking

The future of remote network management and monitoring depends on how you plan to run your network infrastructure in coming years. Software-defined networking (SDN) is a technology and approach that many companies are considering because it removes a lot of the manual management processes from the devices themselves

and centralizes IT control over those resources.

“SDN appears to be the logical culmination of the software-defined infrastructure wave (virtualization and converged infrastructure) that has radically altered the infrastructure landscape over the past decade in the data center,” Mehra says. “By building increased levels of agility, flexibility, and automation into networks, enterprise IT will enable—rather empower—itself with better control and resource utilization over network resources.”

But perhaps the best thing about implementing SDN is that it will ultimately force you to implement better remote network management and monitoring tools because “software-defined networking requires good monitoring,” Kindness says. And by taking

the control processes away from individual, physical networking devices, it also makes it much easier to manage networks regardless of where they originate. This makes it much

easier for IT teams to manage remote networks from one central location rather than having to worry about placing someone onsite at every facility to handle potential issues. **P**

Let Your Data Dictate Your Approach

It’s important for companies to keep their specific needs in mind when looking for solutions, according to Rohit Mehra, vice president of network infrastructure at IDC. “Network management decision-makers must determine their network infrastructure management requirements in light of new data types, data velocity, cloud, security, compliance, and higher-volume traffic,” he says. “Enterprises and service providers must have accurate, transparent, and insightful visibility across the network to understand risks and ensure network health and effective remediation. On the technology side, networking is only going to become more challenging. With SDN still some time away from mainstream adoption, vendors and ecosystem players need to be looking at how this will impact their business models going forward.”

BONUS TIPS:

Configuration Management

John Rakowski, an analyst and advisor at Forrester Research, says companies should consider configuration management solutions that cater to “unreliable, low bandwidth, and out-of band conditions.” He says these solutions “are critical in order to be able to deploy applications,

updates, and security policies to remote employee devices, plus they allow for easy scheduling, meaning that data center managers can limit the impact of deployment on employee productivity.”

Cloud-Based Solutions

Rohit Mehra, vice president of network infrastructure at IDC, says companies should consider cloud solutions. “When

anomalies occur, network administrators need to be able to rapidly hone in to the source of the problem,” he says. “As such, remote network management has a key role to play within enterprise IT, whether orchestrated from an enterprise data center or outsourced to a third party. In either scenario, cloud-based network management tools are likely to continue to increase in popularity.”

Implement Data Loss Prevention In The Enterprise

Consider Endpoint, Network & Email DLP To Cover All Of Your Bases

DATA LOSS prevention (DLP) is a major piece of the security puzzle for companies of all sizes. DLP solutions can help protect your company's most sensitive data, including credit card numbers and intellectual property information, and save you from compliance and company reputation issues.

To take full advantage of DLP, you not only have to understand how it works, but also determine how best to integrate it into your overall security approach.

What Is DLP?

James McCloskey, executive advisor with Info-Tech Research Group, says that endpoint technologies and network technologies are the two primary categories of DLP solutions. "Endpoint technologies consist of software that's running on the desktop or laptop

and looking for specific behavioral activities," he says.

For instance, an endpoint DLP solution could be configured to stop bulk file transfers to USB drives or to help you monitor those data transfers to determine whether any files with sensitive information have been copied to a USB drive, McCloskey says.

Network-based DLP, he says, tends to be more sophisticated and more in line with what people imagine when they picture a modern DLP product. "It's the ability to identify specific types or patterns of sensitive data, whether it's credit card numbers, Social Security numbers, bank numbers, birth dates, and on and on," he says. "If it has a pattern associated with it that you can identify, it can be something that DLP technology can see moving across the wire,



whether that's through an email, Web interaction, or a file being transferred across the network. DLP can stop that transfer from happening."

Why You Need DLP

McCloskey breaks down the different types of data loss threats to insider and external threats. Insider threats are often seen in situations where a laptop with sensitive information, for instance, ends up lost and the data stored on it is compromised.

These types of threats can be both intentional and unintentional, McCloskey says, but either way there's the risk that someone within the organization could leak sensitive information such as third-party customer data, third-party business partner data, or company-owned intellectual property data.

External threats are also common and involve hackers trying to go after that same sensitive information. "The reality is that in today's threat

landscape, almost any private or sensitive information can be monetized in some way and so we've got these hacking groups that are working as a criminal syndicate to infiltrate organizations, identify sensitive data, and exfiltrate that data for monetary gain," McCloskey says. "The bottom line is that it's about protecting your most sensitive data in a way that lets you continue your business operations."

Key Points

- Know how DLP works, what different types of DLP are available, and why it's so important to have it.
- Companies in highly regulated industries and those with hard or soft IP need DLP.
- Some companies can use the base tools of a DLP solution, but others may need to work with a vendor to configure it to their specific needs.

Get Started

Eric Ouellet, research vice president at Gartner, says that organizations often "attempt to boil the ocean" by trying to do too much too quickly. Sometimes this means that the company will go with one solution because "the vendor may claim with real proof that they've deployed to hundreds of organizations like yours," Ouellet says, but in all actuality, you need to take the time to understand the specific DLP needs of your business before diving in head-first. "If you try to do too much right from the get-go, you'll get lots of false positives and eventually you'll just be drowning in events and you won't be able to tell which ones are real," he says.

Compliance & IP Protection

Companies that will rely the most on DLP are those that need to protect their intellectual properties or those that are in regulated industries.


According to Eric Ouellet, research vice president at Gartner, companies with regulatory compliance concerns related to PCI, HIPAA, Sarbox, and other regulations “actually represent 70% of the overall DLP market out there.” Ouellet says that companies concerned with regulatory compliance are “concerned primarily with the perimeter, meaning emails being sent out, someone posting something to a Web site, or using Web mail.”

On the other side, you have companies with hard IP, “which is IP-like source code, chemical formulas, patents,” and more or software IP, which is text-based IP, he says. This could be something as big as the schematics used to build your most popular product or something smaller like a help desk manual that teaches customer service reps what to say and how to handle certain situations.

Companies with IP-related issues, however, are “really concerned about USB drives and optical media,” Ouellet says. You have to understand which type of content you are trying to protect and then find a DLP solution that can be tailored to those specific needs.

Find A Vendor & Product

Ouellet says that “from a technical perspective, pretty much all of the vendors have at least a baseline level of equivalency,” which means for companies with basic needs, you should be able to find a suitable DLP solution relatively easily. But if your company has more specific use cases in mind and you’re “pushing a use case beyond just a more traditional baseline deployment,” the differences between vendors will start to reveal themselves, Ouellet says.

McCloskey agrees and says that in addition to being able to monitor data transfers and completely stop them from going through, you should also consider the more sophisticated approaches to DLP. 

Action Plan

Consider the content. Know what types of information you are trying to protect, whether it’s sensitive customer data, intellectual property information, or other content.

Choose the right kind of DLP. Many DLP solutions have similar basic features. But based on the type of data you want to protect, determine whether it would be best to deploy DLP at the network or endpoint level.

Communicate with your vendor. Work together with your vendor to go beyond those base features and try to find tools that will meet your specific use cases. Make sure you leave no stone unturned and that every avenue will be covered.

Configure your DLP solution. Your DLP solution should integrate well into your existing security approach and serve simply as an extra step in the process to prevent data leakage. Set up your pattern-matching criteria so that you don’t get false positives and unnecessarily block data transfers.

Top Tips

Maintain a business perspective. Eric Ouellet, research vice president at Gartner, says that even though DLP “might appear to be a technical tool, in fact it’s a business process tool that deals with business data.” This means that even though you may rely on the IT team to “take care of the technology parts” of the DLP solution, it’s crucial to remember that “anything that’s generated by the system needs to go to the business team,” he says. For instance, if you have a group in your company that handles PCI compliance responsibilities, those employees need to have direct access to the data.

DLP is a fit for most. James McCloskey, executive advisor with Info-Tech Research Group, says that even though DLP isn’t necessarily for every company, it is becoming important for a wider range of businesses. “The reality is that most organizations hold sensitive data that they wouldn’t want to see compromised,” he says. “It could be compromised from a disclosure on the Internet that could cause brand problems or compromised in a way that it could result in a reduction of their competitiveness. If you’re in a situation like that, your organization should be looking at some form of DLP.”

Get More Out Of Your UPS & Other Power Equipment

Learn How Power Equipment Manufacturers Are Boosting Product Efficiency

MOST COMPANIES look to server innovation to improve energy efficiency and cooling, but you also need to dig down to the component level to find more granular areas to maximize efficiency. Power equipment manufacturers are working on ways to give data centers more energy in a smaller footprint, while at the same time minimizing the impact on cooling. It's in these product innovations that you'll find new areas to improve the overall efficiency of your data center.

UPS Advancements

The UPS is a major piece of power equipment that manufacturers are working hard to improve. It can often be one of the more inefficient components due to double conversions,

which is something manufacturers are trying to overcome with multimode UPSes.

"When you think about double conversion from a UPS perspective, as an example, I'm converting the power coming in from the utility, smoothing it out, and making it nice and stable," says Darin Stahl, principal consulting analyst at Info-Tech Research Group. "Then, I'm converting it back to AC power so that my servers can use it. Every time I do those conversions, I lose efficiencies."

The goal of multimode UPS units is to eliminate some of those conversions in order to drive up efficiency, but it also goes beyond that to help prevent potential downtime. Stahl says that UPS systems used to have low transfer rates, which



meant that there could sometimes be a long enough delay during a conversion or other power process to make your other systems think there was a power outage and shut the system down. But now companies are working on new features to help avoid this issue and drive up efficiency in general.

"They've actually done a lot of improvement in making the technology switch and transference really fast," says Stahl. "Now, they're down to 2ms or 3ms, which is a pretty indiscrete blip, and for most loads, that's sufficient. There are some critical loads out there that have no tolerance at all for that, and they may be candidates for the traditional double-conversion approach. If you can reduce that footprint and reduce that workload, then you're saving money."

What Efficiency Gains To Expect

Stahl says a few years ago, 92% and 93% efficiency levels

were seen as "astonishing," but now manufacturers are building their products to help companies achieve as high as 98% or even 99% efficiency. However, it's important to remember that these levels are always theoretical and Stahl says he doesn't think 100% efficiency is even possible, because "there is always going to be some loss." Still, he says if companies can make even a 6% increase in efficiency, with UPS units for instance, there's a potential to save hundreds of thousands of dollars.

Travis Irons, director of engineering and product management at Server Technology (800/835-1515; www.servertech.com) says that because efficiency gains are often hard to measure, vary "from product to product," and depend on things such as the outlet count and kW rating of the product, you should look at the other potential efficiency-related benefits you get over the long-term.

How Denser Power Equipment Affects Efficiency

Product density is great because you can do more with less, and one big benefit of density is that "you can extend the life of your workable space," meaning that the less area a component takes up, the more room you have for other equipment, says Darin Stahl, principal consulting analyst at Info-Tech Research Group. One potential downside to density is that it can negatively impact your cooling, but these issues can be overcome.

"For enterprise-class, carrier-grade, and utility-grade computers, ambient and input temperatures are pretty low the way they always were, but for cheap and cheerful rack-commoditized equipment, they've actually raised those temperatures," says Stahl. "It's really important to understand what your cooling system can do and what it's capable of at the input level."

For example, efficiently designed products “that run at a lower temperature are going to have a longer life,” he says. This means you can keep your equipment around for longer, still get those efficiency gains, and now save money on two fronts rather than just one.

Future Of Power Equipment

Although there are quite a few advancements in power equipment right now, there’s always something bigger and better on the horizon.

For instance, Stahl says that power equipment will get smaller and faster with more modularity and segregation. “They’re going to try to do interesting things about moving the heat source away from the equipment,” he says. “You’re already seeing some of that modularity, but we’ve all been in smaller rooms where there are UPS units and batteries generating heat for no reason. You’re seeing UPS manufacturers trying to combat those issues.” He says this might lead to more discrete cooling at the precision level.

Manufacturers will start better understanding how much heat their products generate and find more efficient ways to deal with that heat.

Irons says manufacturers will continue innovating their products and drive up efficiencies in multiple areas. For example,


some products better distribute outlets from along the height of the rack to create shorter cable runs, which in turn leads to “better airflow, lower temperatures, and lower operating costs,” Irons says.

The goal for all manufacturers, however, is to make it less expensive to power your equipment and take less cooling to maintain proper operating temperatures, both of which will positively impact the efficiency of your data center.

Improving Equipment At Every Level

Maximizing efficiency takes more than just adding new features to equipment. Manufacturers also have to reconsider how they build their products in general, even at the granular level.

When manufacturers start from the ground up building the interconnections that help reduce inefficiencies upfront, data centers can minimize losses in the long run. Your

data center power systems will also benefit from the thorough vetting of components that are low in power consumption, which will better optimize overall operation. 

The Potential Of Alternative Energy & Cooling

Looking toward the future, Darin Stahl, principal consulting analyst at Info-Tech Research Group, says that many companies wonder if power equipment will try to take advantage of free cooling or if manufacturers will “bake renewable free energy features into their standby power systems.” He says that this is certainly possible, but that adoption rates may be low. “If you look at overall trends on PUE [power usage effectiveness] over the last four years, they haven’t moved a ton,” says Stahl. “They’ve gone from 1.9 to maybe 1.6, according to the Uptime Institute. You’re starting to see a downward trend, but it’s not real steep. I think a lot of that is because these pieces of equipment are legacy, they have a long refresh cycle, and it takes a long time for you to update the ecosystem to do something to move the PUE numbers significantly.”

BONUS TIPS:

Manage Airflow Space

Travis Irons, director of engineering and product management at Server Technology (800/835-1515; www.servertech.com), says that manufacturers can improve their products, but data centers need to do their part as well to improve efficiency. “Think about your cabling at the back of the cabinet and try to minimize

that to get laminar airflow back there,” he says. “Look at outlet distribution, alternating phase technologies, and the overall footprint of the power strip, because you don’t want something that is encroaching on that airflow space.”

Innovation In Waves

Darin Stahl, principal consulting analyst at Info-Tech Research Group, says that it often takes a

long time for new products on the market to show true value, but that innovation comes in waves, which data centers must prepare for. “We’ve seen this in the industry before where it looks static, there are little changes here and there, and then all of a sudden something really revolutionary shows up every five or so years,” he says. The key is to wait for the innovation wave and time your refreshes to gain those benefits.

What You Need To Know About BYOID

How Bring Your Own Identity Authentication Is Maturing IT Consumerization

DO YOU REGULARLY log into a third-party Web site with a username and password you've already authenticated on another site or social networking app? This is what's known as bring your own identity (BYOID or BYOI) or bring your own authentication/access (BYOA).

Although it's an action that many users perform without a second thought, this approach to digital authentication is one that IT security administrators need to pay close attention to as Web sites increasingly allow visitors to sign up or log into accounts using their existing authentication data. We'll introduce you to what's on the industry radar

when it comes to the topic of BYOID and address its impact on the enterprise.

How BYOID Is Applied

As users continue to utilize applications and cloud-driven services to access social media networks, online storage, Web-based productivity suites, and other tools, they're embracing a simpler way—BYOID—to gain access to so many sites. But the risks of embracing this consolidation of social identities, such as how much trust one should place in certain sites and other privacy vulnerabilities, is of concern for today's IT security leaders.

Nevertheless, organizations can't ignore the many



practical use cases for BYOID. Bob Tarzey, Quocirca analyst and service director, says he uses BYOID all the time, “for example, on the JustGiving charity site, where I log in with my Facebook ID, or with Hootsuite where I use my Twitter ID. You are given the option of creating an account or using a social login.”

According to research from a recent Ponemon Institute report entitled “The Identity Imperative For The Open Enterprise: What IT Users & Business Users Think About Bring Your Own Identity (BYOID),” users are experiencing what's called “registration fatigue,” which is the reason why many popular sites are allowing visitors to use their digital identities from trusted third-party sites.

BYOID Perceptions

Although the familiarity and interest in BYOID among IT users vs. business users isn't

yet consistent in the majority of both groups, a minority is already aware of the impact of BYOID, according to Ponemon's survey findings.

When considering their organization's level of interest in BYOID, 50% of IT users say their interest is high or very high, and 63% of business users say the same. This data points to the fact that BYOID is growing into more than a just a tech-related trend.

A greater disparity emerges when you compare who these two groups believe owns digital identities within an organization. For example, 38% of IT users say that there is no single owner but there is shared responsibility. Conversely, 24% of business users indicate that data analytics “owns” the organization's digital identities. A total of 7% of IT users and business users together believe that IT security is the owner of identity data, however.

The Value Of BYOID: IT Users vs. Business Users

According to the survey results of a recent report by the Ponemon Institute, business users and IT users don't yet see eye-to-eye on the value of bring your own identity (BYOID) in an organization. About 80% of business users—the highest total percentage for this survey question—say that delivering a better customer experience is the greatest value of BYOID. Boosting marketing effectiveness is also important to this demographic, with 76% listing that as a benefit of BYOID.

IT users responded from a decidedly security-centric standpoint, with 67% indicating that a strengthening of the authentication process is the value that BYOID brings to the table. The lowest common denominator for a value add is the generation of new revenue: 13% of IT users and 21% of business users put this benefit in collective last place.

Finding Trust & Value

The drawbacks of supporting BYOID in the workplace are evident, and the primary dangers revolve around a lack of trust.

“Quocirca research shows that business- and financial-oriented [sites], such as LinkedIn or PayPal, are much more trusted than mainstream social media, such as Facebook or Twitter. Perhaps not surprising,” Tarzey says. “However, if we get used to it, the idea is that we will take better care of a small number of chosen IDs than we would the tens or hundreds of them we are expected to create today.”

Aside from taking advantage of the convenience and autonomy that a “federated


identity” affords, other benefits include streamlining the online user registration process for new customers, supporting mobile initiatives, onboarding employees and contractors, and accepting social identities for marketing efforts, according to Ponemon’s research.

What’s Ahead

The purposes of adopting BYOID practices in the enterprise are driven by a need to create stronger user identities, to reduce costs, and to help maintain an employee’s identity across numerous workplaces, generally speaking. Although the main use case in the current social-media-integrated economy is consumer-related, Tarzey says

that it’s also for business-to-business relationships.

“In the future, [BYOID] could be for contractors and even employees. After all when you start a new job,

your employer does not issue you a passport to travel overseas, instead you provide your own. Perhaps in the future we will all bring our own IDs to work—watch this space.” 

What Social Sites Can Do To Support BYOID For Business

One could say that social media Web sites are the “early adopters” of the BYOID approach to digital identity authentication. But sites and services that have already popularized BYOID could certainly go to greater lengths to earn the trust of users and better protect identities in the long run, says Bob Tarzey, analyst and service director at Quocirca.

“Social media sites [need to] up the ante and introduce stronger authentication (e.g., Google 2 factor authentication) [and] overall online security should improve. Over time, our social IDs [will] become stronger, more established, and therefore more trustworthy.”

BONUS TIPS:

Assess & Proceed

Similar to conducting a cloud-readiness assessment for your enterprise, a pre-BYOID-adoption “beta test” may be equally beneficial to perform with simulation to better understand how you might incorporate BYOID practices into your business. Start by consulting your legal and security teams to review

the risk level that third-party authentication may pose. At this point, you can determine if you’re better off hosting your own federated identity management system or if you should go with a third-party, cloud-based service that can securely operate from multiple sources, such as an identity-as-a-service provider.

What About IDaaS?

For some SMBs, the best answer for what to do about BYOID in the workplace is to rely on an identity-as-a-service (IDaaS) provider to host and manage the authentication infrastructure. If you’re already used to working with third-party cloud vendors, you should be familiar with what to look for when you’re

evaluating solutions. For example, you’ll want to find which adoption phase the IDaaS is in and what services it offers in terms of identity and access management overall. Other questions to ask the provider: What type of road map can it provide to account for future BYOID standards? What level of data security does the service offer?

Control Storage Costs Through Insight & Action

How Identifying Data & Using Storage Efficiency Tools Can Keep Costs In Check

IN A TIME WHEN nearly all enterprises are storing more data than ever and storage consumes a sizable piece of the overall IT pie, storage management has become increasingly important. The need is amplified for storage administrators who might be operating with strained budgets and strapped resources yet still need to keep pace with company growth.

To keep storage costs in check, it's vital for you to develop and implement a long-term storage strategy based on insight into the enterprise's data and the use of the right storage tools.

Assign Value

As enterprises continue to generate and store increasingly more data, adopting a sound philosophy toward storage can help in the

pursuit of keeping storage costs under control. As David Hill, founder of Mesabi Group, says, storage is basically nothing more than a "home for data." Realistically, a home can only grow so large. Thus, enterprises have to decide what data is worth devoting capacity and resources to.

"The best way to control storage costs would be to delete data that has no business value to the enterprise, and that's well more than half of all data stored," Hill says.

Storage administrators, however, generally lack authority to delete data. Further, getting business units to decide what is safe to delete can be difficult and time-consuming. Thus, it doesn't happen to a great extent, Hill says. Chargeback or showback schemes can prove useful in showing users



storage costs they're incurring but also may be beyond the administrator's scope, he says.

What storage and IT managers can generally do is develop an active archiving and deep archiving scheme, keeping active production data such as online transaction processing systems and email in the active production tier of storage, Hill says.

Data presumed to have some value but with low access frequency can be put in an active archive layer where it can be used reasonably quickly, he says. Data unlikely to be used again can go in a deep archive via sequential tape or inexpensive public cloud. With archiving, storage cost is less per unit of data stored, Hill says.

Gain Insight

Before implementing any technology that can aid in keeping storage costs under control, you need a clear awareness of enterprise

Key Points

- Knowing what storage and data the enterprise has is key to making long-term decisions that help control storage costs.
- Various technologies can reduce the amount of data the enterprise must store.
- A comprehensive storage plan can help define the parameters administrators must work within and which storage tools can best help do so.

data, how it's used, who is using it, how often, and other insight. Accepting that storage demands aren't going to decrease is also important. At the industry level, Laura DuBois, IDC program vice president, says storage is growing 25% each year.

Overall, knowing what storage the enterprises has on hand, what percentage is allocated, what's static but still being read, and more will help

Get Started

To ultimately help control costs, Greg Schulz, senior advisory analyst at Server and StorageIO, recommends building a toolbox of items from operating systems, storage vendors, and third parties that can provide insight into storage, data, and performance and that can reduce the data footprint impact. The latter may include compression, consolidation, data management, data deletion, deduplication, snapshot, thin provisioning, tiering, different RAID levels, and other options. Overall, understand that tools can be used in different ways to address different issues, he says.

decide which storage options can realistically help control cost. Deduplication, for example, can drive anywhere from 25 to 50% or more in storage savings depending on use case, data type, application, and other factors, DuBois says.

Even if an enterprise takes a “let’s just store everything” stance, Greg Schulz, senior advisory analyst at Server and StorageIO, says the IT team must ask how data will be stored, how often it will be backed up, and other questions that can affect cost.

In another scenario, he says, if an enterprise knows it has a large chunk of static data that’s read every day, it could archive it or move it to a lower-cost tier. “I could also change my data-protection frequency and interval it so that I can take some overhead costs away,” he says.

Having insight into what percentage of storage is video, images, text files, presentations, and so on can pinpoint candidates for enabling operating system or application single-instance storage, Schulz says.

Plan Ahead

To control storage and thus costs, enterprises should focus on using just one tool—be it compression, deduplication, tiering, or thin provisioning—otherwise it could miss opportunities, Schulz says. Deciding which tools

to use requires a comprehensive storage plan. If storage administrators know they’re dealing with a flat budget but still must support growth (performance, capacity, applications, etc.) via a highly resilient, agile storage environment, they can then determine if leveraging tools such as tiering or deduplication are a viable option, he says.

Hill says “storage is going to grow, but keeping costs in check means that you don’t want to store more than what’s absolutely necessary, that you move data as quickly as possible to a less expensive archiving tier, and that you avoid making more data protection copies than is necessary.”

Two strategies are worthwhile for managing costs, he says. One is shining a light on what group is consuming storage and getting it to take responsibility. “Otherwise

there’s disconnect between consumers of storage (business units, for example) and payers for storage (IT),” he says.

The other strategy is developing and implementing a sound, rigorous, and effective archiving strategy. **P**

Action Plan

Acquire awareness. Controlling data can make it easier to control storage costs. Better utilizing existing storage, for example, is generally preferable cost-wise to adding capacity. Improving storage utilization, however, requires insight into what storage and data is present, who is uses it, how often, and other factors.

Assign value. Arguably the best option for controlling storage costs is deleting data that lacks real value, which is a sizable portion in some organizations. Putting a disposal policy in place that enables deleting data will take pressure off of adding more capacity.

Plan long-term. A lot of data an enterprise has isn’t likely to change or be accessed and could be placed in less expensive storage tiers. Doing so may save on direct and indirect costs related to production copies of data.

Top Tips

Establish storage rules. Reports and tools that determine inactivity of data and identify data types and who owns data can help in establishing rules about storing items that have no business value.

Make a business case. Business managers may believe that because storage is cheap that simply storing everything shouldn’t be a problem. What they may not realize, however, is that doing so will slow data analysis and the ability to get the right information to the right people to make informed decisions at the speed they desire.

Carefully consider the cloud. Moving enterprise data to cloud storage is often billed as a way to generate notable cost savings. As storage requirements scale up over time, however, the associated ongoing costs of storing more data could negate the initial savings.

Avoid Disasters In The Cloud

Manage Your Expectations In Terms Of Costs, Workloads, Performance & More

YOU'VE LIKELY HEARD a cloud disaster story or two. Workloads didn't match up. Costs exceeded expectations. Or, in possibly a worst-case scenario, the cloud provider went under, giving customers only days to move their workloads and find a new provider.

There are ways to avoid disasters in the cloud, and a lot of it comes down to having a clear understanding of your goals; agreeing on costs, fees, and service levels upfront; and thoroughly vetting providers before handing over your workload or enterprise data.

Understand Your Needs

Before you even begin evaluating providers or signing agreements, have a clear understanding of your workloads and expectations.

Take the time to understand what your company is trying

to accomplish and whether a cloud-based service is the best way to get to that goal, says Dan Kusnetzky, distinguished analyst and founder of the Kusnetzky Group.

"Not all applications are cloud-ready," he says. "Does the enterprise understand how data located on-premises can be accessed from the cloud-hosted application? Can on-premises applications access data in the service provider's data center?"

Christian Perry, senior analyst and content manager, data center, at Technology Business Research, says there is a large and growing set of best practices for public cloud use, particularly as the cloud becomes established as a strategic infrastructure and application alternative for companies of all sizes. But the most important tool is to research both your goals and the available providers.



"Companies need to do their due diligence before moving workloads or data to the cloud or replacing on-premises applications with cloud apps," Perry says. "The lure of saving money through cloud services is strong, but past history has shown that leveraging cloud resources without proper research can easily end in frustration at best and business disaster at worst."

Be careful to not get caught up in the general assumption that public cloud services will always be less expensive than on-premise options, Perry says. "Cloud applications don't always deliver the same level of feature granularity as traditional applications, and that lower level of usability could impact the total cost of ownership."

Available At All Times?

When you sign an agreement with a cloud provider, many users expect that provider and its services to be available at all times. Unfortunately, though, that's not always the case.

Key Points

- Know your goals and the results you want. What do you hope to gain from moving workloads or data to the cloud?
- Identifying problems with the cloud can be a big challenge given the cloud's elastic, influx nature.
- Cloud services are not immune to outages. Have realistic expectations in terms of performance.

"There is always an expectation that compute resources, applications, and data will be available at all times," Perry says. "That's simply not the case today."

Perry says outages of cloud services are a recurring problem for customers, particularly those that rely heavily on the cloud for business requirements. However, he says, if an enterprise uses cloud services for cold storage, the impact of outages won't be as severe.

Get Started

What's one of the best ways to ensure success in the cloud? Make sure you're turning your workloads and data over to a provider with a solid history and one that matches your needs and goals.

"Get references before you buy," says Joe Clabby, president of Clabby Analytics. But don't stop there. Be sure to check those references so you can ensure you're picking a reputable service provider. How has the provider treated customers? Has the customer encountered any trouble? If so, how has the provider responded? How quickly? "Companies that have figured out the cloud usually have a strong list of reference accounts," Clabby says.

Security & Performance

Security risks and application performance are common problems, says Joe Clabby, president of Clabby Analytics. Two concerns regarding security are authorization (making sure the person accessing the data is authorized to do so) and authentication (ensuring that the person is who she says she is), Clabby says.

“Knowing where your data is and how to protect it can be a bit of a challenge in an elastic, in-flux cloud environment,” he says. “In the cloud, data moves around a network to different machines, so data travels over the network on the fly and must be protected during transmission. And data finds a home, so it must be protected when at rest.”

Perry says cloud service providers have improved security significantly in recent years, but there is no guarantee that data stored in the cloud will be safe. Just like any other organization, public cloud services can be vulnerable, he says. “On the other hand, some customers—particularly in the SMB space—may find that public cloud services can deliver more security than what they’re able to provide in-house with their own resources.”

Clabby says that, because workloads are “run all over the place,” pinpointing a problem with workload performance

can be a challenge. “You’ve got to get to the root cause of a problem in the morass of a highly distributed cloud environment,” he says, which requires being able to look at things like where the workload is running, where the data is coming from, how the data is being delivered, machine performance, and the like.

Two things can help. Application performance management software is important, Clabby says, as is the ability to automate the deployment and management of workloads. “The more automation, the more operational efficiency and the lower the cost.

Despite the best precautions, problems are bound to happen, he says. “Get penalties built into the contract for failure to deliver on promised service levels.” **P**

Action Plan

Understand the terms and conditions. Make sure you understand the terms and conditions under which the cloud services are being offered, says Dan Kusnetzky, distinguished analyst and founder of the Kusnetzky Group. “Sometimes inexperienced people just click through those terms without really understanding who is responsible for what and if the service provider will help when something fails.”

Have a backup plan. “Things will fail,” Kusnetzky says. “It should be expected and plans made to address the failure.” If an enterprise fails to implement a backup plan prior to engaging with a cloud service provider, and the provider folds, there is not much than can be done, says Christian Perry, senior analyst and content manager, data center, at Technology Business Research. “Fully research and understand the consequences of poor or disappearing service,” he says. Then develop contingency plans, which could involve storing copies of data or applications on-premises or even with a backup cloud provider, he says.

Top Tips

Plan for the future. Cost plays a big role in the provider you choose, and your evaluation needs to account for how workloads will change in the future. Long-term planning helps. “Customers need to keep in mind that, when moving workloads to the cloud, utility-based pricing might eclipse what they originally intended over time, particularly if the requirements for the workload increase as the business grows,” says Christian Perry, senior analyst and content manager, data center, at Technology Business Research.

What to do when a problem occurs. When you encounter a problem with a provider, whether it’s a service failure, lost data, or any other issue, contact the provider, says Christian Perry, senior analyst and content manager, data center, at Technology Business Research. “Most major cloud service providers have extensive support services that will help clients through the problem. Jumping to another provider is rarely the right move, due to the cost and time involved with the shift.”

BUYING TIPS:

Equipment Recycling & Disposal Services



THERE'S SO MUCH TO DEAL with when it comes to old equipment. Can you reuse or repurpose it? Or do you need to just get rid of it? If that's the case, a vendor can help you ensure equipment is handled in an environmentally responsible manner while abiding by privacy and compliancy regulations. Here's what to look for.

Know Your Equipment & Needs

Be sure you understand your equipment and the capabilities of the recycling company.

"Can your equipment be recycled whole, or must it or parts of it be destroyed? How are you going to handle hard drives or other media devices? Are you going to remove them yourselves and destroy them prior to recycling, or is the service qualified to destroy them for you?," says Ken Koty, sales engineer at PDU Cables (866/631-4238; www.pducables.com). Be sure any servers have all your data removed, he says, and consider pulling and destroying the data drives prior to recycling.

Check Facilities, Processes

Koty says you want a reputable company with a good track record. Find out how long the vendor has been in business and ask for (and check) a list of previous clients.

Don't just look for the least expensive service provider,

Koty says. He recommends visiting the firm and inspecting its procedures. Check what security and surveillance the vendor uses, how it can assist with ROI for current projects, and what documentation processes it uses.

Be sure to find out how equipment is picked up and handled, who pays for shipping, where equipment ends up, when you will get paid, and if the vendor can assist in other ways such as providing new products or offering credit from old equipment. Know if the vendor has downstream vendors and who they are.

"If you have specific needs for the way equipment is destroyed, ask for a certificate of destruction as verification of the service provided," Koty says. "Even if the outside firm produces all the proper paperwork and has a good sales pitch, there could still be liability issues for the data center if the firm doesn't follow proper disposal procedures."

Onsite vs. Offsite

With data destruction, you have two choices: onsite or offsite. With an onsite service, you won't have to deal with chain of custody. If your data center stores sensitive data and wants to physically destroy it, you'll have peace of mind from watching the destruction.

If you want absolute destruction, consider offsite data destruction as service providers typically have more powerful shredders at their facilities than mobile shredder services can offer, plus some offsite data destruction services also double as a reprocessing center that can remarket the parts, providing return value.

What About Liquidation?

Also keep in mind an alternative disposal process: liquidation, and, more specifically, choosing a credible vendor with a proven track record to manage a private auction marketplace. Typically this is a third party service provider that handles

vetting buyers, reselling equipment, and streamlining monetary returns.

A New Location

If you're preparing to move to a new facility, there are additional considerations in regard to decommissioning. It's wise to assign a project manager to oversee the moving process—someone who can take inventory, review service contracts, and keep track of your budgets.

It may also be necessary to work with a decommissioning and demolition team. Experts can help you handle asset delivery purchase agreements, step-by-step execution, and final site restoration. **P**

CHECKLIST

Do your homework. Compile a list of equipment you no longer need, then determine its resale value, who might purchase the equipment, and how the resale value can help fund purchases.

Check for qualifications. Determine how long the prospective vendor has been in business, what its reputation is in the industry, and what compliancy and certification measures it operates by and has achieved.

Know the difference between a broker or provider. Determine if the vendor actually provides recycling and disposal services or is just a broker of such services.

Understand the process. Know how the vendor processes equipment, including who handles equipment, where it goes, how long processing takes, and what documentation you can expect.

BUYING TIPS: Servers

WHEN BUYING A new server, you have to know much more than just your enterprise's current and future needs. Budgets, compatibility, and vendor considerations also come into play.

Above all, you need to understand when it's time to buy new servers. As with any IT purchase, the goal should always be to invest in a solution that will meet performance needs for years to come.

Determine Features You Need

Charles King, president and principal analyst at Pund-IT, says CPUs, memory, and I/O are the most critical server features, though their relative importance depends on the application and workload. Companies running a business-critical database or online transaction program, for example, should eye a higher-end CPU/system than what's needed for general-purpose applications. For virtualization-related use, spend more for extra memory and I/O.

Mark Bowker, Enterprise Strategy Group senior analyst, says that too often, buyers purchase a server with more capacity than needed, which provides the comfort of extra headroom but adds expense. At the same time, though, you want to future-proof your investment as much as possible by looking for efficient, power-saving servers that can help lower energy costs in the short and long term.

"IT should understand what the latest processor chipset is on the market and what the stated road map of the chip manufacturers are," Bowker says. "This will help avoid buying into servers that are at the end of a product life cycle."

Tau Leng, Ph.D., vice president and general manager of corporate marketing and HPC solutions at Supermicro (408/503-8000; www.supermicro.com), says today's server systems are available with a variety of processor technologies and form factors. "Customers often purchase equipment that is overdesigned with unnecessary features," he says, which is why it's essential you work with an experienced and reliable partner that can offer a variety of solutions.

In addition, Leng says, adherence to standard rack unit is important to allow for easy interchange of servers. Remote management features also are critical, and power savings is becoming an important element in TCO determinations.

Consider Your Budget & The Total Cost Of Ownership

Before you get started with a server upgrade or replacement, be sure to carefully plan your budget. Don't forget that the total cost of ownership includes many different items beyond just the upfront server cost.

Possible expenditures include equipment, software licensing,

labor, telco and power company services, facility improvements, vendor support, and downtime. Additional costs related to supporting a new platform can include those for power, network cabling, cooling, rack space, and management personnel, he says.

"In any infrastructure purchase, the upfront capital acquisition cost is just part of the deal. Three- to five-year total costs should be calculated, including maintenance and facilities costs," says John Sloan, principal consulting analyst at Info-Tech Research Group.

Watch For Trends

Leng says one relatively new trend in servers is high-temperature free-air-cooled server environments, which can reduce electricity demand and rein in costs.

Virtualization and consolidation are also having an impact. Sloan says it's important to know how a server will fit into a consolidated stack that includes servers, networks, and storage.

Unlike distributed models, Sloan says, "in a consolidated infrastructure, the server is a unit of hard capacity (processing and memory) that's combined with networks and storage in a resource pool that's partitioned up into virtual entities." Increasingly, he says, enterprises aren't buying servers, but blocks of capacity.

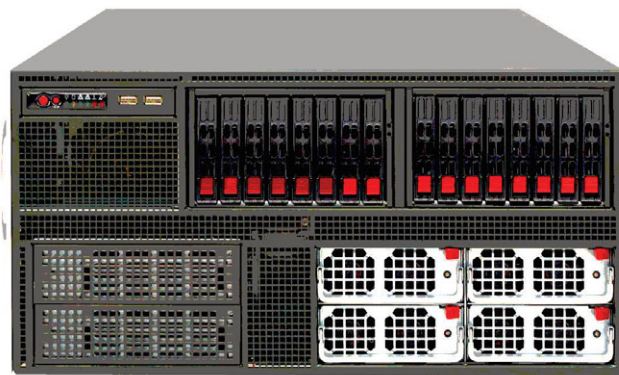
What differentiates current offerings "is how the interconnects are managed and how the whole thing is managed as one resource pool," Sloan says. Typically, blade servers are the form factor for consolidated offerings, he says. **P**

CHECKLIST

Match needs, requirements. Make sure the application and workload the server will support aligns with the CPU, memory, I/O, storage, and other components you plan to purchase.

Spot upcoming trends and know how you'll use them. Virtualization, consolidation, and cloud computing are trending areas where servers are concerned. How will these trends impact your data center and the servers you purchase, both now and in the future?

Check your vendor. Ensure the vendor you plan to buy from satisfies all questions concerning support, compatibility, performance, and other issues.



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AITP Research Triangle Park

Oct. 9
NC State University Club
4200 Hillsborough St.
Raleigh, N.C.
www.rtp-aitp.org

AITP Washington D.C.

Oct. 9
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

AITP Lehigh Valley

Oct. 15
Kutztown, Pa.
www.lv-aitp.org

AITP Southwest Missouri

Oct. 15
MSU e-Factory
405 N. Jefferson
Springfield, Mo.
www.aitpspringfield.org

ISSA Los Angeles

Oct. 15, 11:30 a.m.
Taix French Country Cuisine
1911 West Sunset Blvd.
Los Angeles, Calif.
www.issala.org/events

AITP Twin City

Oct. 16, 7 p.m.
Ozark House Restaurant
704 McGregor St.
Bloomington, Ill.
www.aitp.org/members/group_content_view.asp?group=75779&id=125369

Data Center World— Leadership Conference

Oct. 19-22
Orlando World Center Marriott
Orlando, Fla.
www.datacenterworld.com/fall

Big Data TechCon

Oct. 27-29
Hyatt Regency
1333 Bayshore Highway
Burlingame, Calif.
www.bigdatatechcon.com

Google Glass DevCon

Oct. 27-28
Hyatt Regency
1333 Bayshore Highway
Burlingame, Calif.
www.ggdevcon.com

AITP Akron

Oct. 28
Akron, Ohio
www.akron-aitp.org

NOVEMBER

DatacenterDynamics Converged Toronto

Nov. 6
Eaton Chelsea
Toronto, Ontario
www.datacenterdynamics.com/conferences/2014/toronto-2014

AFCOM North Carolina

Nov. 12, 8:30 a.m. to 1:30 p.m.
(Facebook Tour Afterward)
Byron's South End
101 W. Worthington Ave., Suite 180
Charlotte, N.C.
www.afcomnc.org

AITP Wheeling

Nov. 12
White Palace at Wheeling Park
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Wheeling, W.Va.
www.aitp-wheeling.org

AITP Research Triangle Park

Nov. 13
NC State University Club
4200 Hillsborough St.
Raleigh, N.C.
www.rtp-aitp.org

AITP Washington D.C.

Nov. 13
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

AnDevCon Fall

Nov. 18-21
Hyatt Regency
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Burlingame, Calif.
www.andevcon.com

AITP Lehigh Valley

Nov. 19
Kutztown, Pa.
www.lv-aitp.org

ISSA Los Angeles

Nov. 19
11:30 a.m.
Taix French Country Cuisine
1911 W. Sunset Blvd.
Los Angeles, Calif.
www.issala.org/events

AITP Twin City

Nov. 20
7 p.m.
Ozark House Restaurant
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DatacenterDynamics Converged Dallas

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Renaissance Dallas Richardson
Dallas, Texas
www.datacenterdynamics.com/conferences/2014/dallas-2014

AITP Washington D.C.

Dec. 11
Alfio's La Trattorio Restaurant
4515 Willard Ave.; Chevy Chase, Md.
www.aitpdc.org

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Solutions Directory

Here are brief snapshots of several companies offering products designed for the data center and IT industry. Listings are sorted by category, making it easy for you to find and compare companies offering the products and services you need.

You can find more detailed information on these companies and the products they offer inside this issue.

**To list your company and products,
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PHYSICAL INFRASTRUCTURE



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Products Sold:

A full range of **Room Alert**® monitors, sensors, and software for temperature, humidity, heat index, power, flood/water, smoke/fire, air flow, room entry, outdoor and fluid temperature, fuel and water tank levels, panic buttons, oil, sound, light, and more. Alert by text, email, SMS, phone, and more.

(888) 220-6700 | www.AVTECH.com

PHYSICAL INFRASTRUCTURE



ComputerWise, a privately held U.S. based corporation founded in 1971 as a provider of off-the-shelf as well as custom software and systems for the manufacturing marketplace, has since 1981 manufactured factory data collection systems and equipment. Our product line consists of compact keyboard/display units, networking hubs (TIM1B) and concentrators (TLD2), plus application software.

Today ComputerWise manufactures a wide-range of data collection terminals, both stationary and portable, as well as Ethernet based terminals and our EC305 Ethernet Time Clock and EC305-FP Biometric Time Clock.

Products Sold:

- NTP Synchronized Wall Clock
- Payroll Attendance Clock

(800) 255-3739 | www.sales@computerwise.com

PHYSICAL INFRASTRUCTURE



Based in New York City, Hergo Ergonomic Support Systems is an independent designer and manufacturer of enclosure cabinet solutions, technical computer furniture, and modular racking systems. The company's products are designed to promote organization in the workspace and to increase the productivity of computers, peripherals, and communications equipment. Hergo is known for its high-quality products and superior customer service.

Products Sold:

- Racks
- Enclosures/cabinets
- Motorized workstations
- Flat-panel arms
- Computer desks
- Cable management
- Power management

(888) 222-7270 | www.hergo.com

PHYSICAL INFRASTRUCTURE



Upsite Technologies®, Inc. is the industry leader in data center airflow management and provides a full suite of products and services designed to optimize data center cooling systems, allowing managers to maximize cooling capacity while reducing energy costs. Upsite distributes its award-winning line of services and products, including its KoldLok® raised-floor grommet, through leading channel partners in the data center industry throughout the United States, EMEA and the Asia Pacific region.

Products Sold:

- HotLok
- KoldLok
- AisleLok
- EnergyLok

(505) 798-0200 or (888) 982-7800 | www.upsite.com

PHYSICAL INFRASTRUCTURE



Black Box is a leading technology product solutions provider that helps customers build, manage, optimize, and secure their networks. The company is a single source for cabling, cabinets and racks, localized cooling, power and surge protection, environmental monitoring, and more. Black Box also offers a best-price guarantee and FREE, live, 24/7 U.S.-based Tech Support.

Products Sold:

- Acoustic IT Enclosures
- Cabinets & Racks
- Cables & Patch Panels
- Console Servers
- Cooling
- Datacom
- Industrial
- Infrastructure Hardware
- KVM
- Networking
- Power
- Remote Monitoring

(877) 877-2269 | www.blackbox.com

PHYSICAL INFRASTRUCTURE



Recognized as the pioneer of KVM switch technology, Rose Electronics offers the industry's most comprehensive range of local and remote server management products such as Digital Signage, Video wall Controllers, Video Splitters, Digital KVM IP, Fiber/CATx KVM switches, KVM extenders, KVM Rack Drawers. Rose Electronics products are known for their quality, scalability, ease of use and innovative technology. We listen carefully to our customers and work with them to ensure they receive the best products and service to fulfill their technology needs.

Products Sold:

- Switch Selector
- KVM Multi-user
- KVM Single-user
- KVM IP
- AV Switches
- Multi Viewers
- Video Walls
- AV Switches
- Multi Viewers

(800) 333-9343 | www.rose.com

PHYSICAL INFRASTRUCTURE



Founded in 1994 in Silicon Valley, Pactech has been a trusted cable solutions provider for data center infrastructure, networking and storage appliances, high-performance computers, and embedded systems. They not only manufacture, but also custom design. Pactech's solutions surpass customer expectations in functionality, quality, costs, and lead time. Their agile capabilities allow rapid prototyping as well as volume production. Pactech's specialty cable portfolios are one of a kind and outperform same category items.

Products Sold:

- CAT6a/CAT6/CAT5a/CAT5
- SAS/SATA Cables
- Wire Harnesses
- DisplayPort/DVI/HDMI/VGA
- USB
- Power Cords
- Direct Attach Copper (DAC)
- Fiber Optic Cables
- Peripheral Cables
- More

(408) 526-9363 | www.pactech-inc.com

PHYSICAL INFRASTRUCTURE



LINDY USA specializes in cables, adapters, electronics, and accessories for computer, networking, and audio video applications. Since 1932, Lindy has supplied high-quality interconnects to customers in commercial, telecom, and residential markets. What sets us apart is our complete dedication to innovation, performance, and reliability. Our cabling products are truly outstanding.

Products Sold:

- Networking Products
- Sharing, Converting, Extending
- Hardware and Security
- Cables
- Audio / Video
- USB and FireWire
- Add-On Cards
- Adapters
- KVM
- Input Devices
- Power
- Much more!

(888) 865-4639 | www.lindy-usa.com

PHYSICAL INFRASTRUCTURE



Founded in 1985, Raritan has become a leading provider of power and energy management, DCIM and KVM solutions. Our products are in use at more than 50,000 locations worldwide, including eBay, Cisco, Intel, NASA, and the United States Post Office, giving IT departments the tools they need to increase power management efficiency, better manage data center changes, improve data center productivity and enhance branch office operations.

Products Sold:

- Intelligent Rack Power Distribution Units
- Energy Management Software
- Data Center Infrastructure Management
- KVM and Remote Access Management

(732) 764-8886 | www.raritan.com

PHYSICAL INFRASTRUCTURE



As an integrator and master distributor providing quality power solutions, HM Cragg has built a reputation as the company that delivers innovation to aid and satisfy its customers. HM Cragg was founded in 1968 and is 100% employee-owned, focusing on quality people and exceptional products.

Products Sold:

- AC and DC power solutions (UPSes, power distribution)
- Control and monitoring (environmental and power)
- Connectors and cables (cord sets, ePDU cables)
- Cooling and Racks (airflow management, portable cooling)

(800) 672-7244 | www.hmcragg.com

PHYSICAL INFRASTRUCTURE



Sensaphone has been designing and manufacturing remote monitoring systems for more than 25 years and has more than 300,000 of its products in use. Sensaphone's product lineup offers a full range of devices with a broad number of features and applications designed to monitor your entire infrastructure and alert you to changes. All product engineering functions, including hardware and software design and circuit board layout and assembly, are performed at the Sensaphone facility in Aston, Pa.

Products Sold:

Remote monitoring solutions that provide email and voice alarm notification for problems related to temperature, humidity, water detection, power failure, and more.

(877) 373-2700 | www.sensaphone.com

PHYSICAL INFRASTRUCTURE



Founded in 1995, Austin Hughes Electronics Ltd. is a design and manufacturing group that offers a broad range of solutions based around 19-inch rack-mount technology. With a wealth of experience, Austin Hughes design and development teams are focused to rapidly transform customer requirements and market trends into saleable solutions.

Products Sold:

- Infra solution Cabinet Smartcard Handles
- InfraPower Cabinet Intelligent PDUs
- CyberView Rackmount KVM & LCD Console Drawer
- Environmental Sensors

(510) 794-2888 | www.Austin-Hughes.com

PHYSICAL INFRASTRUCTURE



Compu-Aire Inc. has been providing quality specialty air conditioning equipment since 1980. We offer products employing the latest state-of-the-art control and energy management technology and work with you to design HVAC systems that can save you money. Our engineered flexibility allows you to fine-tune your HVAC system to meet the specific requirements of your application, resulting in lower installed and operating costs, high energy efficiency, quiet operation, superior indoor air quality, and low-cost maintenance and service.

Products Sold:

Ceiling mount, floor mount, wall hung, console, and in-row air conditioning systems.

(562) 945-8971 | www.compu-aire.com

PHYSICAL INFRASTRUCTURE



PDU Cables is the leading supplier of power distribution cables assemblies to data centers in North America. PDU Cables has been serving this industry since 1981 and is the first independent cable assembly company to introduce colored conduit into the power distribution cable market, the first to get UL 478 listing, and the first to introduce the Power Cable and Equipment Configurator software tool. The company is centrally located in Minneapolis, Minn., allowing it to offer 24-hour turnaround and shipping time of just one or two days to almost any United States destination.

Products Sold:

A range of power cables, cable seals, and power cord assemblies.

(866) 631-4238 | www.pducables.com

PHYSICAL INFRASTRUCTURE



Server Technology is committed to the PDU market with the largest group of engineers dedicated to power distribution and other solutions within the equipment cabinet. Advancements in device power monitoring help data centers monitor and improve their efficiency, and continuous research and development is fueled by companies that look to Server Technology for their custom cabinet power solutions.

Products Sold:

A complete line of cabinet PDUs, including Per Outlet Power Sensing (POPS), Rack Mount Fail-Safe Transfer Switch, Console Port access with remote power management, Switched, Smart, Metered, Basic, and -48 VDC

(800) 835-1515 | www.servertech.com

PHYSICAL INFRASTRUCTURE



Since 1979, Simplex Isolation Systems has been setting new design standards in modular expandable cleanroom components, isolation curtains, hardware, and new product development. Fontana, Calif.,-based Simplex's unique strip doors and mounting systems are designed for quick installation. Simplex parts and materials perform with optimum efficiency, last longer, and save you money. And with Simplex, you are always backed by industry expertise, product knowledge, and the best warranties in the market.

Products Sold:

- Cleanrooms
- Enclosures
- Strip doors
- Curtains

(877) 746-7540 | www.simplexisolationssystems.com

STORAGE



Boasting more than 20 years of experience in the industrial computing market, iStarUSA Group has made its mark in the design and manufacture of rackmount chassis, industrial power supplies, data storage, enclosed cabinets and racks, and custom power solutions. The group reaches a number of vertical markets via its four divisions: Claytek, iStarUSA, RaidAge, and Xael.

Products Sold:

- Claytek: Racks and enclosures
- iStarUSA: Industrial chassis
- RaidAge: Data storage
- Xael: Industrial power

(888) 989-1189 | www.istarusa.com

STORAGE



StorSAN is a leading manufacturer of networked and direct-attached storage solutions for data-intensive enterprise and SMB environments. Since 2002, StorSAN has provided innovative turnkey OEM storage solutions that help simplify the way our customers deploy fast and reliable products to new markets.

Products Sold:

- 10GbE iSCSI SAN
- Fibre Channel SAN
- Hybrid NAS/iSCSI/Cloud Storage
- SAS RAID Storage

(714) 494-1030 | www.STORSAN.com

SECURITY



IDenticard® Access Control, a division of Brady Corporation (NYSE: BRC), is a leading manufacturer of integrated physical access control solutions to protect data, employees, visitors & facilities. The company draws on its 35-plus years of experience in security software development to provide innovative products based on its customers' requirements and the needs of the marketplace. In 2014, IDenticard introduced Rack Armor™ server protection, a unique, patent-pending physical security solution to protect and monitor activities in data centers.

Products Sold:

- Physical Security for Data Centers
- Visitor Management Systems
- Physical Security for Buildings
- Security & Technology Cards

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SERVERS



Supermicro® (NASDAQ: SMCI), the leading innovator in high-performance, high-efficiency server technology, is a premier provider of advanced server Building Block Solutions® for enterprise IT, data center, cloud computing, HPC, and embedded systems worldwide. Supermicro is committed to protecting the environment through its "We Keep IT Green®" initiative by providing customers with the most energy-efficient, environmentally-friendly solutions available on the market.

Products Sold:

- Servers
- Network switches
- GPU servers
- Motherboards
- Storage solutions
- Embedded
- Chassis
- Blade servers

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SERVERS



Chenbro is a leader in enclosure solutions, selling its products primarily to system integrators and OEM and channel partners. The company's extensive research and development efforts help it to keep its competitive edge and maintain market leadership, with special focus on thermal, EMI, and acoustic solutions. Taiwan-based Chenbro has offices in the United States, UK, The Netherlands, and China.

Products Sold:

- A comprehensive line of PC chassis, server/workstation chassis, rackmount chassis, and HDD enclosures.

(909) 937-0100 | www.chenbro.com

CLIENTS



The Smart Choice for Text Retrieval® since 1991, dtSearch has provided enterprise and developer text retrieval along with document filters for over 22 years. Supported data types include databases, static and dynamic website data, popular "Office" formats, compression formats and email types (including the full-text of nested attachments). dtSearch products meet some of the largest-capacity text retrieval needs in the world; the company's website includes hundred of developer case studies and reviews.

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SERVICES



ComTech Services Inc. currently operates a 24x7 dispatch center supporting enterprise level data center equipment servicing manufacturers, resellers, and integrators throughout the world. With over 5,500 sites, ComTech Services provides onsite technical resources to act as a primary and back-up to existing onsite solutions, or in remote locations where the client does not have a presence.

Core Competencies:

- Network Equipment (Installation, configuration, support, maintenance, enterprise storage, server support, wireless surveys and installations)
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SERVICES



Firetrace manufactures reliable, cost-effective, automatic fire detection and suppression systems that can be installed in virtually any "micro-environment" or small enclosed space where critical assets are located or where an increased risk of fire could be mitigated by an automatic fire suppression system. Firetrace systems are completely self-contained, require no electrical power, and are easy to install and maintain.

Services Offered:

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- Heat Index (Feels Like)
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